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THE INDEPENDENT GUIDE TO APPLE COMPUTING

NOVEMBER 1985
VOLUME 3
ISSUE 11

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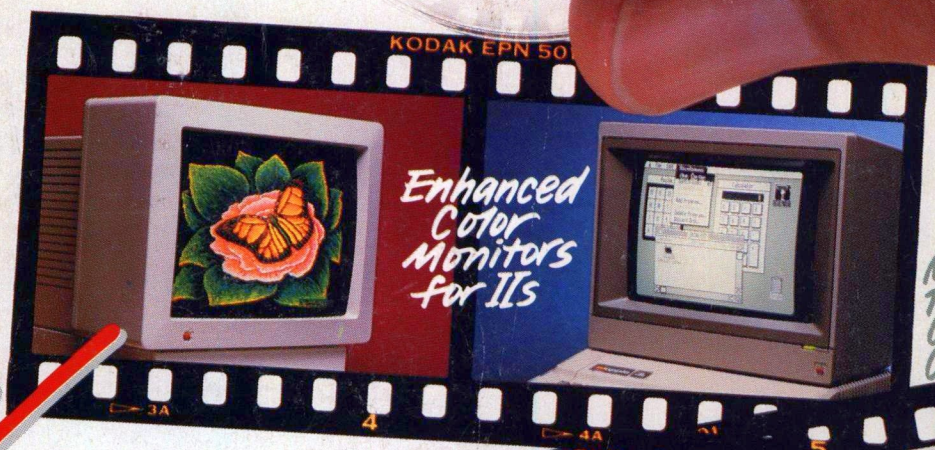

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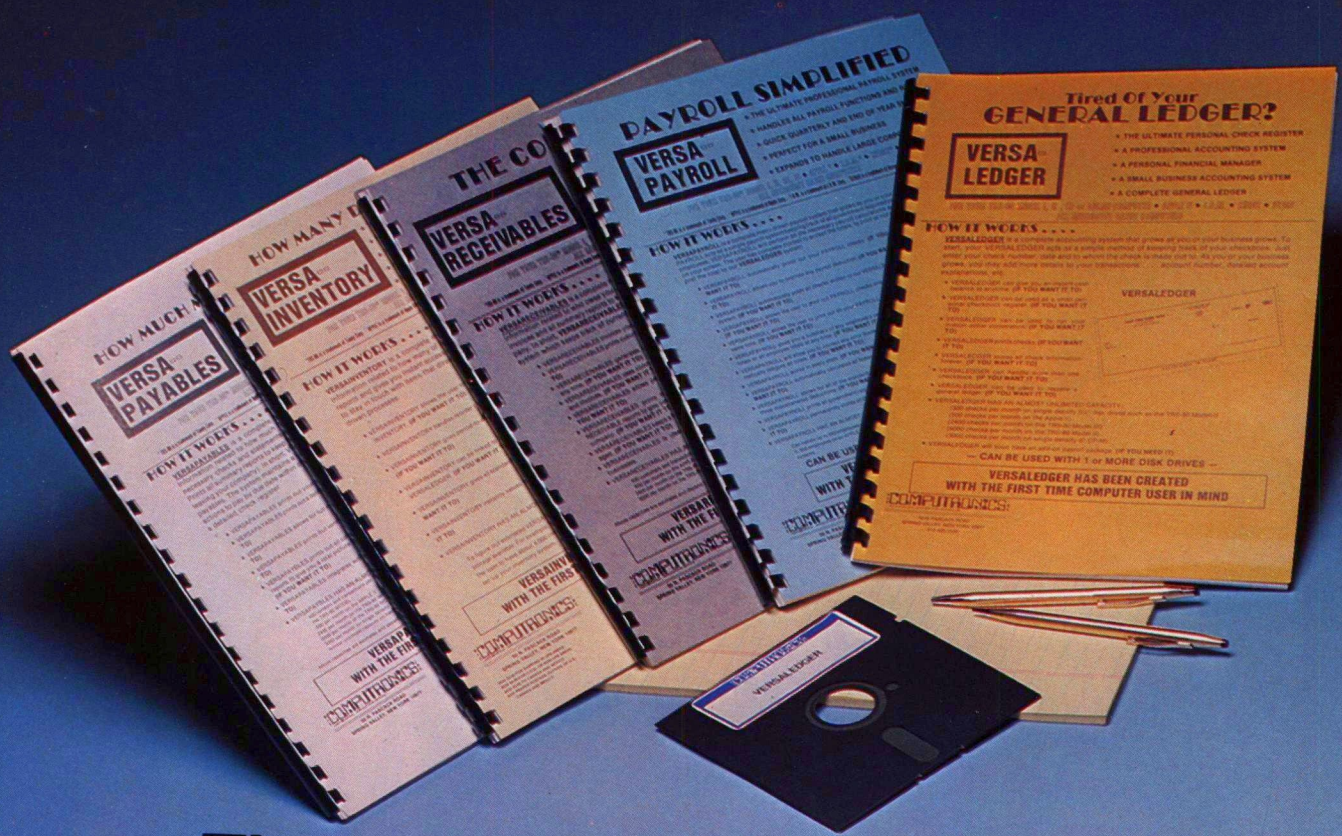

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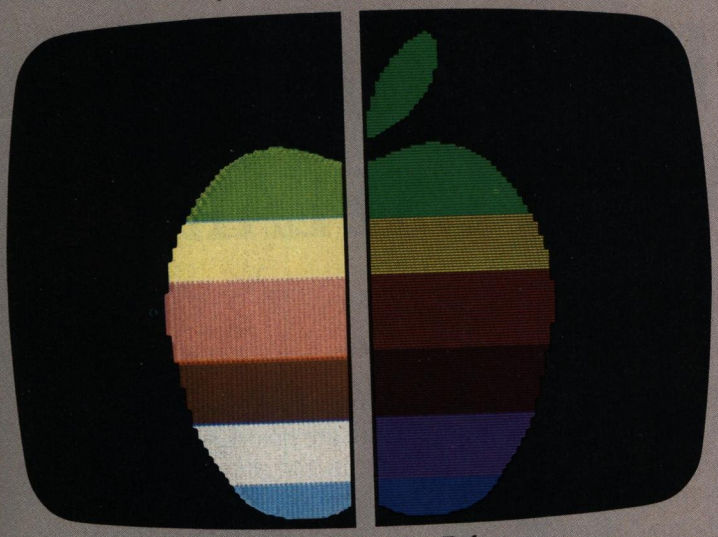

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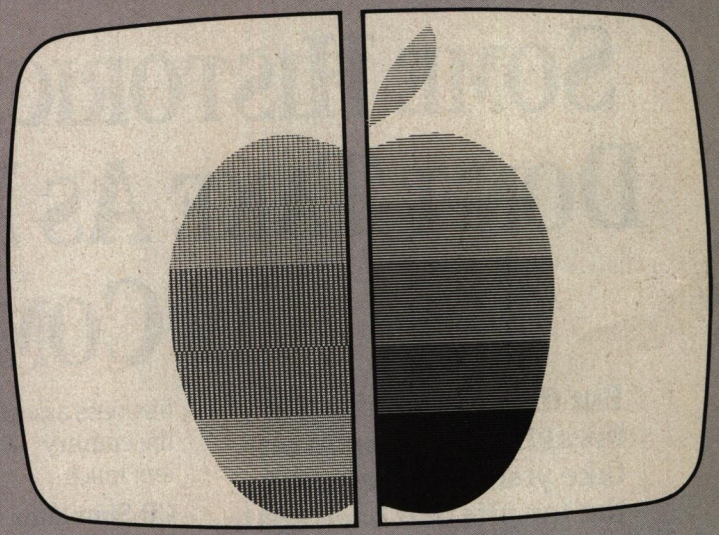

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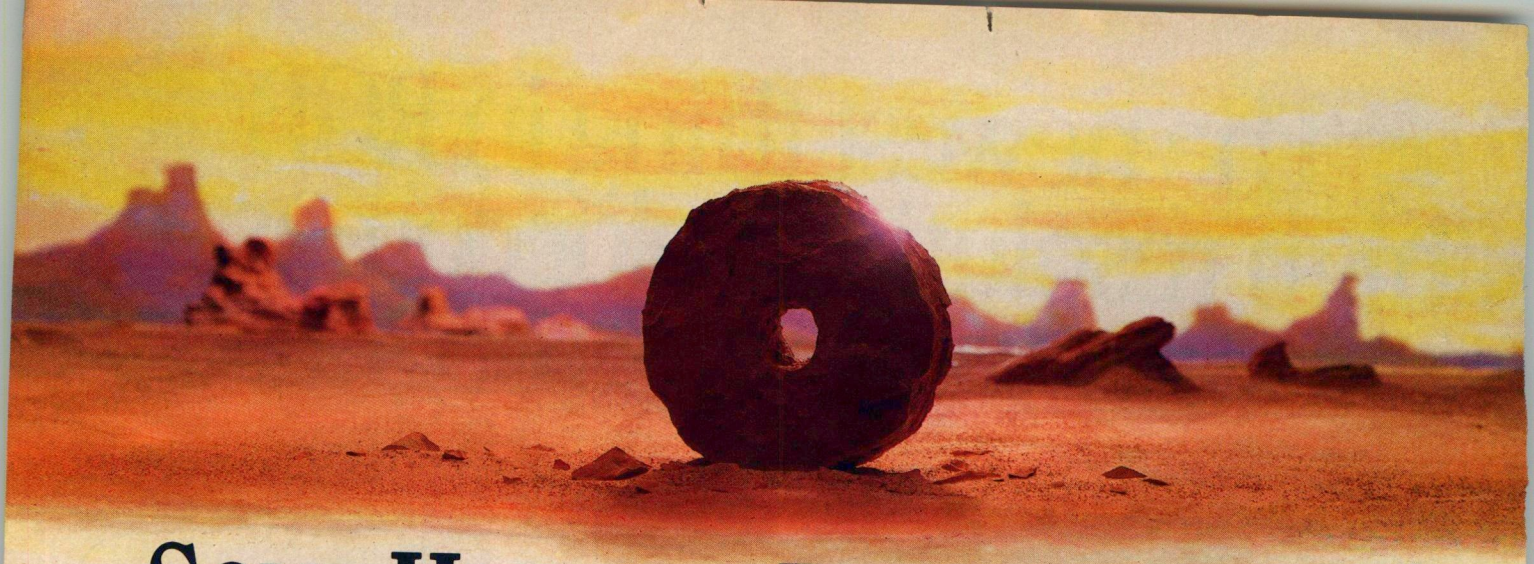

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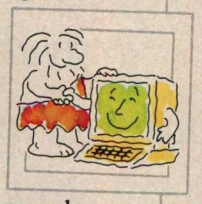

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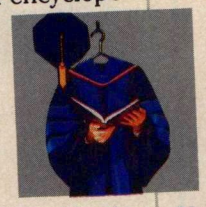

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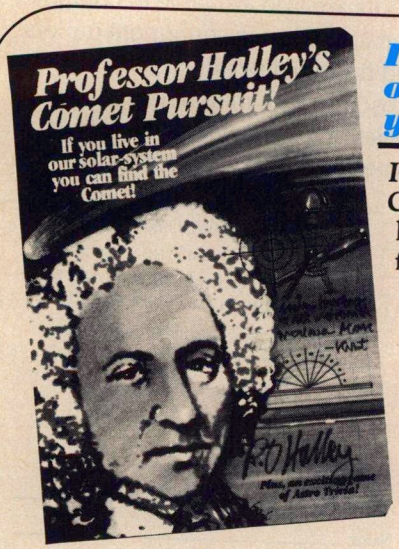

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CONTENTS

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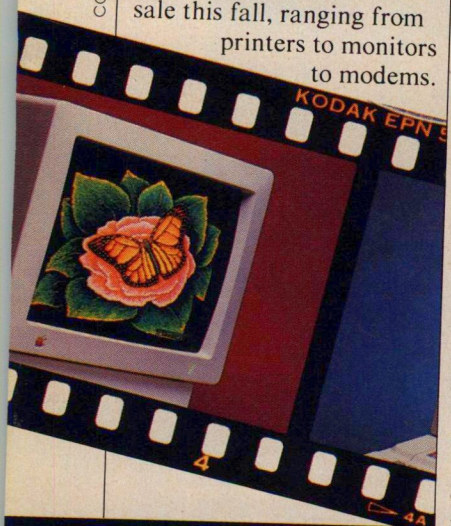
THE INDEPENDENT GUIDE FOR APPLE COMPUTING

COVER: DOW/CLEMENT PHOTOGRAPHY/SANDRA BRUCE CALLIGRAPHY

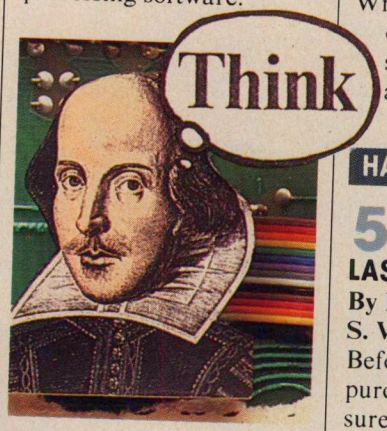
COVER STORY

19
APPLE'S BEVY OF NEW PRODUCTS
By Maggie Canon and Frederic E. Davis
In last month's issue, we hinted that Apple had a lot in store for you. This month we are pleased to bring you the details of Apple's new line of products that are for sale this fall, ranging from printers to monitors to modems.



WORD PROCESSING

26
DEMANDING MORE FROM WORD PROCESSING
By Danny Goodman
If you are venturing into word processing for the first time or if you are an experienced user of word-processing software, read this article to find out what you should look for to get state-of-the-art word-processing software.



35
WORD-PROCESSING CHECKLIST
By Frederic E. Davis
Every word-processing program has a different set of features. We have compiled a checklist of the major ones you should consider when purchasing a word-processing program.

36
WORD-PROCESSING CHART
By Mary Bohannon and Carol Person
Now that you have found out what a word-processing program should contain and have a checklist for what you need, here is a comprehensive comparison of the word-processing software packages available today.

39
AUTOMATED WRITING
By Myron Berger
If you are an Apple Writer user and want to learn how to unlock the power of WPL, Apple Writer's Word Processing Language, be sure to read this tutorial on how to use WPL to string together a series of conventional Apple Writer word-processing commands to be sequentially and automatically executed.

HARDWARE

56
LASER PRINTERS
By Diane Burns and S. Venit
Before you decide to purchase a laser printer, be sure to read this comparison of three of the current leading laser printers, the Hewlett-Packard LaserJet and the LaserJet Plus, and the Apple LaserWriter.

SOFTWARE

53
THE MAGIC OF ALADIN
By Chris Albertson
Learn about the pros and cons of this advanced database program.

73
MOVING DATA WITH APPLEWORKS
By Charles Rubin
Learn how to make AppleWorks work better for you by using the DIF or ASCII standard file formats to simplify data interchange.

81
PROJECT PLANNER
By W. Charles Doherty
A software package from Applitech Software that lets your Apple computer help you plan and manage the order of your projects

86
THE RACE GOES TO THE SWYFT
By David D. Thornburg
The SwyftCard offers multifunction software on a ROM card that plugs into the IIe's little-used slot 3.

DEPARTMENTS

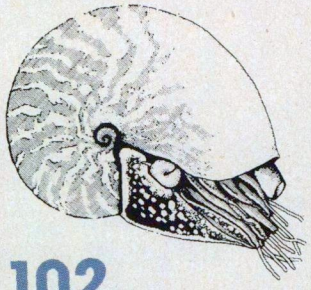
9 EDITORIAL

11 LETTERS

14
NEWS+
By Frederic E. Davis
News and views of the personal-computer industry

47
APPLEWORDS
By Steve Rosenthal
A short glossary of word-processing terms

93
THE LEARNING CURVE
By David D. Thornburg
Pros and cons of creating classroom software with construction sets and authoring systems



102
SPEAKING OF GRAPHICS
By Roberta Schwartz and Michael Callery
Graphics odds and ends, from animation to color printing to new books and products for all the Apple computers

109
THAT'S ENTERTAINMENT
Reviews of Halley's Comet, The Halley Project, Sword of Kadash, Willy Byte in the Digital Dimension, Pyramid of Peril, Ghostbusters, and 5 more games!

141
TELECOMMUNICATIONS
By Russ Lockwood
As comet mania sweeps across the country, renewed interest in the National Aeronautics and Space Administration (NASA) and the U.S. space program is finding its way into the telecommunications world.

182
PIPELINE
By Carol Person and Rhoda Simmons
Products you want to know about—for the entire Apple-computer line

205
THOUGHTWARE
By Steve Rosenthal
This month Rosenthal covers a hot new Macintosh macro program called Tempo from Affinity Systems.

213
RESCUE SQUAD
By Gary B. Little and Greg Mainis
Advice on the Delete Key in Applesoft, controlling Epson print pitch from AppleWorks, AppleWorks printing under ProDOS, and phosphor etching

215 COMING UP

225 READER SERVICE CARD

218 CLASSIFIED ADVERTISING

216 DISPLAY CLASSIFIED

223 INDEX TO ADVERTISERS

148
GET SMART WITH SMARTCOM II
By Russ Lockwood
Hayes Microcomputer's Macintosh version of its popular telecommunications program for the II series. This program merges the capabilities of the original Smartcom II with the mouse- and icon-driven environment of the Macintosh.

157
WHAT YOU SEE ISN'T ALWAYS WHAT YOU GET
By David Dunham
You may not have an Apple LaserWriter of your own, but if you have access to one, there are a few surprises in store for you. This article guides users with occasional access to a LaserWriter past the pitfalls in its use.

164
TIMEBASE
By Sharon Zardetto Aker
Ever wonder if you should take the step of computerizing your calendar? Read this article to find out if an automated calendar is for you.

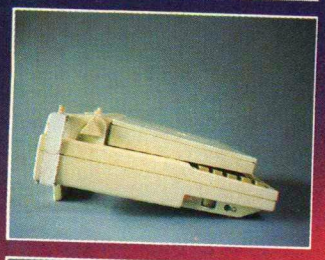
169
PUZZLING PAINTINGS
By Roberta Schwartz
Two programs, MasterPieces from Hayden Software and MacMatch from Axlon, that turn MacPaint pictures into puzzles

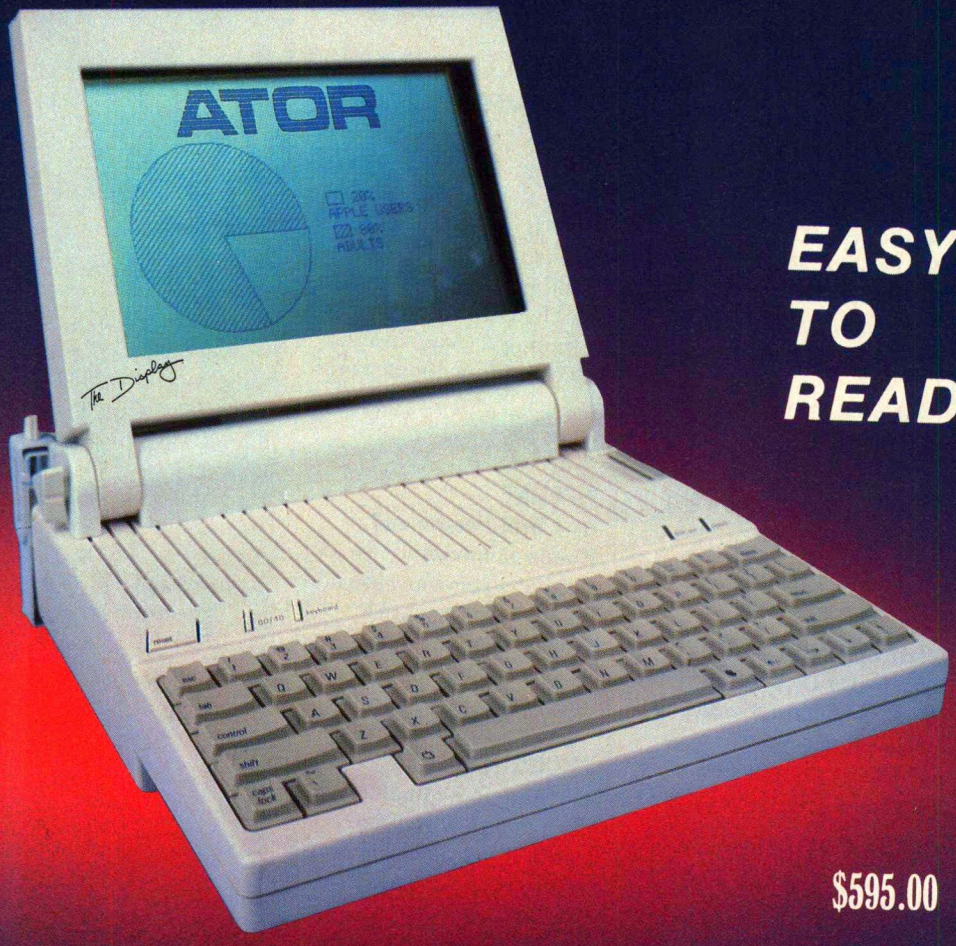
173
MAKING TRACKS WITH MAC-TRACKS
By Robert C. Eckhardt
Mac-Tracks from Assimilation lets you create macros from any application that allows you to use desk accessories.

179
MACTIPS
Suggestions from our readers include keyboard charts, speeding up your Mac, MacWrite line spacing, eliminating printer pauses, and making ditto masters.

The Display™

FLAT PANEL DISPLAY





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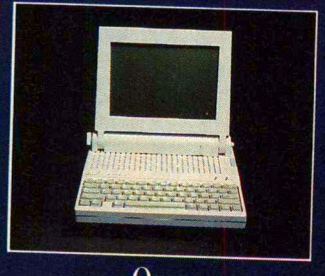

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To order "The Display" for your Apple IIc, call ATOR 1-800-621-0854 ext 170.
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The need to process words is the most significant reason that millions of people have turned to personal computers.

SOME THOUGHTS ON WORD PROCESSING

A few months ago, as we were delving down once again into our collective store of article ideas at one of our regular editorial meetings, we decided it was time to check on the state of word processing. As we planned our set of articles on this subject, I was struck with the realization of how much we take word processing for granted.

I am such a technophile that I honestly don't think I would ever have become a writer and editor if it hadn't been for the advent of word processing. In the old days when I had to rely on pen and paper, I couldn't get my ideas down fast enough, and somehow the vision of rewriting drafts dulled my inspiration. The specter of retyping drafts was even more unappealing, because I was not and am not the world's most gifted typist. Word processing was a welcome innovation for someone like me who had laboriously learned how to touch-type.

The need to process words is, without a doubt, the most significant reason that millions of people have turned to personal computers. The written word is one of our primary channels of communication, after all. I wonder sometimes how novelists of the past could ever have had the stamina to produce massive works such as *War and Peace* and *House Divided* without the aid of word-processing technology. Also, although some lament the disappearance of handwritten letters, I don't—even the prettiest handwriting can be hard to decipher at times.

Word processing has come a long way since it graduated from its initial text-editor stage of development, when it was so impractical that even the cumbersome early word-processing programs looked intuitive and effortless in comparison.

I first encountered word processing during the heyday of dedicated word-processing machines, which, although they were expensive, were great because they made push-one-button magic a reality. After I moved on to personal computers, I was introduced to one of the original mass-appeal word-processing programs, Electric Pencil by Michael Shrayer.

I have to admit that I was pretty shocked when I realized I would have to make a transition from a machine that required a single keystroke to carry out a command to a program that required numerous Control-key sequences to perform a similar function—but I adapted.

One truth I have learned over many years of using different word-processing programs is that your attitude toward a particular program may depend more on getting used to it than on any intrinsic features of the software. I remember hating every new word-processing program I've tried, from Electric Pencil to WordStar to Apple Writer to MacWrite to Microsoft Word. I've always found my attitude improving after a couple of months of adjustment to the new program.

Whether you're in the market for a more powerful word-processing program or you're about to buy your first word-processing software, this issue's several articles on the subject are sure to help you make your decision. Enjoy the issue! +

Maggie Canon

MAGGIE CANON/**EDITOR**

Let's compare Apples™ to Apples.™

An Apple IIc

An Apple IIc with Z-RAM

The Apple IIc on the right works exactly the same as the Apple IIc on the left. Almost. The Apple on the right has a powerful memory expansion coprocessing card called Z-RAM. From Applied Engineering. Which means the Apple on the right can completely load AppleWorks into RAM—and then run it up to thirty times faster than the Apple on the left.

Z-RAM also acts as a solid-state disk drive. Which means the Apple on the right will load and store programs up to 30 times faster. And, our included RAM disk is compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M.

Turbo Charged AppleWorks.

Even a 256K Z-RAM can completely load AppleWorks into RAM. With Z-RAM, the moment your fingers touch the keyboard AppleWorks responds. A 256K Z-RAM lets your IIc run AppleWorks up to 30 times faster, increases available desktop to 229K and maximum number of records from 1,350 to over 16,000, doubles the number of lines allowed in the word processor, provides a print spooler, and auto-segments large files so they can be saved on two or more disks. A 512K Z-RAM boosts AppleWorks desktop to an incredible 413K.

Take a closer look.

There's more. Z-RAM has a built-in high speed Z-80B microprocessor that allows you to run CP/M programs. Which means you now have access to the single largest body of software in existence, including popular packages like WordStar, dBase II, Turbo PASCAL and Microsoft BASIC.

And still more. Z-RAM is compatible with all IIc software and hardware, installs easily in just ten minutes with a screwdriver (slightly longer without), is available with 256K or 512K of additional memory (a 256K Z-RAM can be upgraded to 512K at any time). Z-RAM is easily handled by the IIc power supply with our patent pending power saving design.

The only thing better than that would be a recommendation from Steve Wozniak.

"I recommend Applied Engineering products wholeheartedly." (Of course, Steve's IIc has a Z-RAM installed.)

Steve Wozniak, the creator of Apple Computer.

For fast response.

Z-RAM comes complete with simple instructions, RAM disk software, Z-80 operating system, CP/M manual. And a five year "hassle free" warranty. Make a good Apple great. With 256K Z-RAM ($399); or with 512K ($479).

If you want to run CP/M software, but don't need more memory, we suggest our Z-80c card. The Z-80c has no memory expansion ports and is priced at only $159.

Call 214-241-6060 TO ORDER TODAY. 9 a.m. to 11 p.m. seven days, or send check or money order to Applied Engineering. MasterCard, Visa and C.O.D. welcome. Texas residents add 5⅛% sales tax. Add $10.00 outside U.S.A.

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A SMOOTH LOOK

Dear *A+*,

I would like to add a footnote to "Dot Matrix Printers" (*A+*, August 1985, pages 26–36).

I own an Apple Scribe printer and spent many months in computer and stationery stores buying up as many samples of "smooth" paper as I could, with more or less the same results—good but not great. The top contender throughout all of this was xerographic copier paper, admittedly a smooth paper but with a real el-cheapo appearance. I was on the verge of buying a new printer when I discovered Hammermill thermal-transfer paper. This paper combines a smooth surface with the appearance of good-quality stationery. It can be purchased through the Moore Business Systems mail-order catalog (250 continuous, fanfold sheets per box).

On an unrelated topic, I agree completely with Mr. Drew of Dallas, Texas (letters column, August 1985). The Apple LCD display for the IIc is a major disappointment. The price/performance ratio of this product is way out of whack. I wouldn't mind paying $149 for it, but with a suggested list price of $599. . . really, Cupertino, Apple owners have come to expect more (for less) from you.

Charles Collins
Templeton, MA

UNEXPECTED UPGRADE

Dear *A+*,

A couple of months ago, my husband and I saw an ad in your Macintosh section for a product called MacStation by a company called MicroRain. It seemed like it would be a useful product, so we bought two through the mail from the company (one for each of our Macs). We received two MacStations within a few days, and, after we set them both up, they performed as promised, except for a few deficiencies in the way the paper fed into our ImageWriters. It didn't seem to be that big of a deal, so we just worked around it by not using the paper-feed slot at all.

Well, apparently the makers of MacStation weren't satisfied with their product, because last week we received in the mail an "upgrade" kit that helped alleviate our paper-feed problem. Considering that we didn't even ask for it and, more important, were not charged for it, I thought this was a neat thing for them to do.

With all the complaints I hear about poor customer support from numerous high-tech companies, it's refreshing to find a company with a $95 product that still cares about customer satisfaction. I hope we have as much good luck with the other companies that we will be dealing with in the future.

Anne A. Storkel
A&M Enterprises
Seattle, WA

THE BALANS ALTERNATIVE

Dear *A+*,

The June 1985 article on ergonomics ("Ergo, Ergonomics," pages 25–41) was very good. I am curious, however, why you didn't mention a chair that, to me, is a step beyond those you included, namely the Balans chair, which is manufactured by HAG (Norway) and distributed throughout North America.

I personally find that when I work at a terminal while seated in this particular chair, my posture is correct anatomically. Therefore, the chair reduces stress on the back, thus lessening pain. Some people may find the Balans chair's look odd, but perhaps as it gains exposure, more people will relieve what can be awful pain and work more comfortably.

Robin Ennis
Toronto, Ontario
Canada

FREE UPGRADES

Dear *A+*,

I am the proud owner of an unenhanced Apple IIe purchased in February of last year. In the time I have owned and used the machine, I have learned to adore its manufacturer, Apple Computer. I have also learned to frown on its competitors—mainly IBM, of course—and their products.

I've spent my time playing computer games, word processing, and adding to my Apple. I have an Extended 80-Column Card and an AppleMouse II. So, naturally, when Apple announced its IIe Enhanced Kit, I wanted to get it when the software came out for it. I was all for shelling out the $70. That was until I saw a certain IBM commercial. It stated that if the company improved your machine model, it upgraded yours for free.

All I have to say is this: I firmly believe that Apple is the better company of the two, and this is the only type of upgrade I would classify as needing to be free. I don't mean, for example, that Apple should let people exchange their IIe for a IIc free of charge. Apple has always been the people's computer company, and I hate to see an opportunity to show this go to waste. If IBM has one up on Apple in this area, it could be a mark for its side. Please, Apple, consider it.

Shane Walker
Grandview, MO

PROBING DEEPER

Dear *A+*,

Thank you for including Personality Profile in your interesting article "Leisureware" in the August issue (pages 38–43). Yes, this program does give some real and valid insights, though they may not go into great depth. We do have a program, Professional Personality Inventory ($200), that goes into great depth and needs some expertise to interpret and evaluate. It is used

Spell Checker and Mail-merge for Appleworks Only $49.95!

Now... the luxury of a spelling checker and mailmerge for only $49.95

Spellworks was written exclusively for Appleworks... it fits Appleworks like a glove. Typing and spelling errors are a thing of the past when you use Spellworks! If you've got Appleworks, you need Spellworks. It's a steal -spelled s-t-e-a-l!

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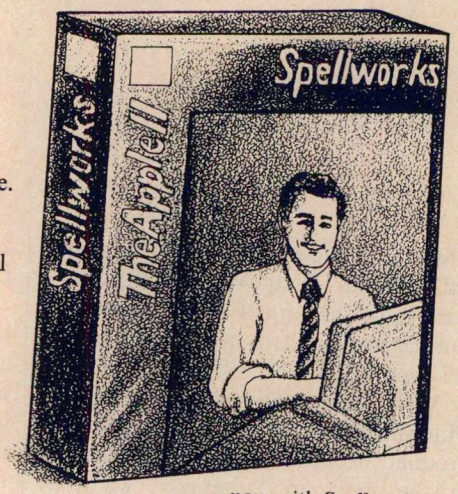

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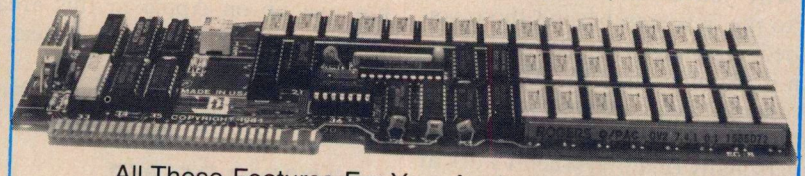

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extensively by psychotherapists and counselors. We are bridging the gap between the two programs with our new Personality Profile II. This program will give an extensive printout that will evaluate many aspects of normal personality such as assertiveness, passivity, aggression, creativity, dependency, optimism, trust, sensitivity, anxiety, depression, and so on.

Ideally, such a program would be equivalent to spending an hour or so talking with a wise and nurturing therapist, one who tells you the qualities of your personality in a positive way, giving you helpful information. If a person has negative personality characteristics, it is not helpful just to state this fact.

If you tell someone he is a jerk, it hurts his feelings and makes him defensive and angry but does nothing for his personal growth. The primary purpose of all Psychological Psoftware is the personal growth of the user. That's the business we are in, and, judging from the letters we receive from our customers, business is good.

Dr. Pax Nidorf, President
Psychological Psoftware
Del Mar, CA

INEXPENSIVE MERGING

Dear *A+*,

Regarding AppleWorks and Michael Callery's article "Amplifying AppleWorks" (July 1985, pages 30–34), you should note that you don't have to splurge to merge! The AppleWorks Mailing Program, available to anyone from International Apple Core (908 George Street, Santa Clara, CA 95050), costs only about $30 and works wonderfully. It can merge 30 categories without problems. You do, however, have to be careful about some print options, but for most of us wishing to merge letters to our friends, it's a great buy.

John Van't Land
Rehoboth, NM

CORRECTIONS

Leroy's Cheatsheets

On page 166 of our September 1985 issue, a picture caption incorrectly states that Leroy's Cheatsheets are available for the Apple IIc. The product is, in fact, for the Apple IIe.

Privacy for $95

MCTel of Bala Cynwyd, Pennsylvania, has informed us that the price of its P/C Privacy encryption software for the Macintosh (*A+*, June 1985, page 177) is now $95.

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Your child's inquiring mind needs continual stimulation and challenge. World Book has long been a trusted source for supplying the quality educational information your child seeks. Now you can buy educational software with those same standards of excellence: Discovery Software from World Book.™

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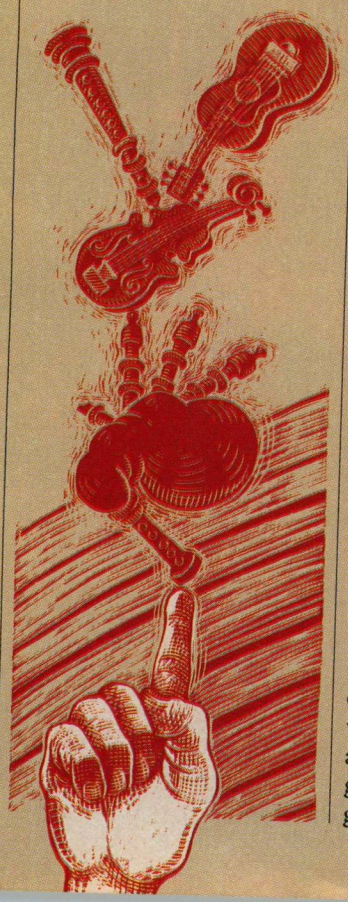
CIRCLE 316 ON READER SERVICE CARD

NEWS+

BY FREDERIC E. DAVIS

ONE-MAN BAND

Musician Christopher Light has produced an entire LP record of American, Irish, and Scottish folk music using his Apple II Plus computer with a Mountain Computer Music System and ALF music card programmed to recreate the sounds of traditional folk instruments. To my knowledge, this is the first album created entirely with an Apple computer. The lively album is titled, appropriately enough, Christopher Light: One-Man Band and is available from Kicking Mule Records, Inc., P.O. Box 158, Alderpoint, CA 95411.



CRISTINE MORTENSEN

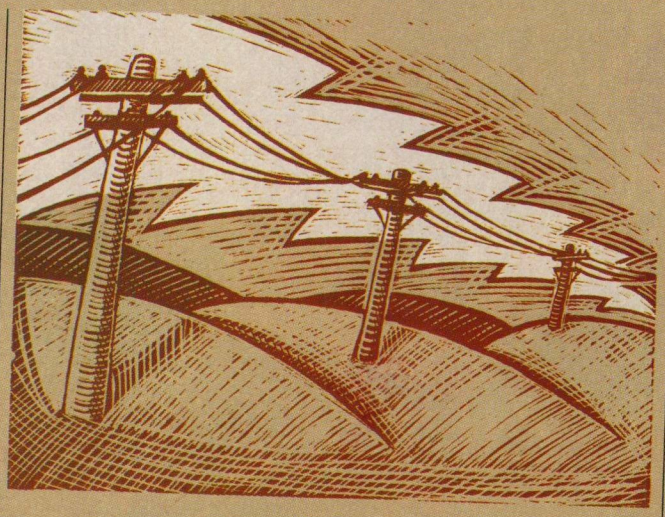
I GO LOGO

Terrapin has announced Terrapin Logo, Version 3.0, for the Apple II series, which utilizes 128K of RAM to provide three times more storage space for users. In order to convert owners of other companies' Logo products to Terrapin Logo, Terrapin is offering an upgrade policy that allows owners of either Krell's or Apple's Logo to send in their language disk, along with $20, to receive Terrapin's Logo 3.0. Write to Terrapin at 222 Third Street, Cambridge, MA 02142 for details.

Terrapin has also announced a version of Logo for the 512K Macintosh called MacLogo, which is supposedly ten times faster than the Apple II version. Terrapin's MacLogo will be competing with Microsoft's Logo and Expertelligence's ExperLogo.

TOUCH YOUR II

If the idea of a touch screen for your Apple II seems appealing, then you should check out the Touch Window from Personal Touch Corporation of San Jose, California. The Touch Window mounts directly over almost any monitor and converts any Apple-II-series computer into a touch-screen system. The Touch Window retails for $199.95 and includes a bundle of software that covers diverse applications such as word-processing, expense-account management, games, and interactive graphics.



MODEMS SPEED UP AGAIN

Just as large modem manufacturers are gearing up to raise the top speed for modems from 1200 bps (bits per second) to 2400 bps, a small start-up company called Telebyte Technology, Inc., of Greenlawn, New York, is claiming that it has developed a new modem that transmits at 4800 bps over a standard phone line.

Telebyte has developed a patented mathematical algorithm that allows the sending modem to monitor the noise on the telephone line and then instruct the receiving modem to subtract the noise from the data that is being transmitted. According to Telebyte president Joel Kramer, the new technology will soon allow modems to transmit at 9600 bps. Since Telebyte is too small to supply the projected demand for the new speedy modems, the company plans to license the technology to interested third-party developers.

HABAWORD FOR THE MAC

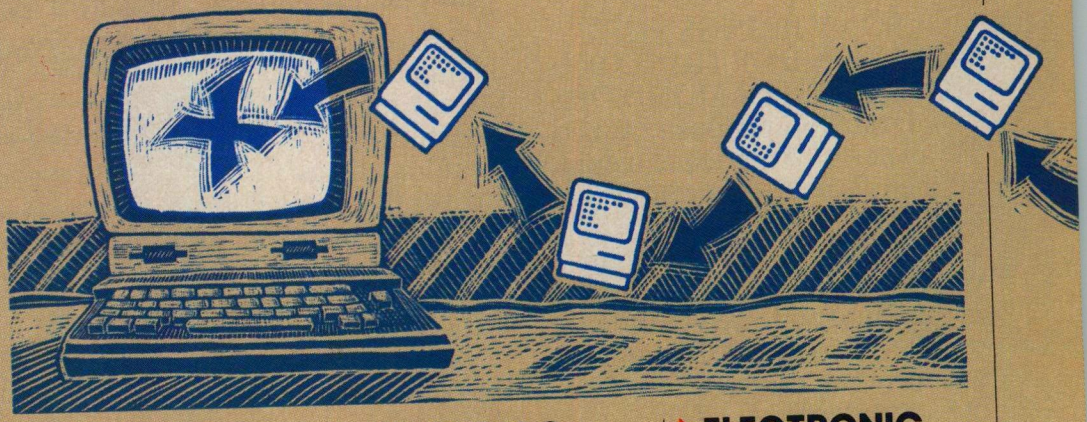
Although a swarm of database and accounting packages is available for the Macintosh, there are only three word-processing packages: MacWrite from Apple and Word from Microsoft, and the Jazz word-processing feature, which is very reminiscent of MacWrite and must be purchased as part of the Lotus Jazz integrated-software package.

Now another word-processing package for the Mac, HabaWord from Haba Systems of Van Nuys, California, has reared its head. HabaWord, which will retail for $99, was developed by the creators of the ill-fated Visi-On. It seems to be a robust word-processing program, packed with features such as the ability to show multiple columns on the screen, and it offers type sizes from 1 point to 128 points. We'll take a close look at HabaWord in a future *A+*.

WHO ARE THESE GUYS, ANYWAY?

A mysterious company called Abaton Technology Corporation has recently introduced three intriguing products for the Apple product line. One product is a 5¼-inch disk drive for the Macintosh that can read most IBM PC and CP/M diskette formats, perfect for transferring your Lotus 1-2-3 files to Excel or your dBASE files to Omnis 3. Another product is a 300-dot-per-inch (dpi) desktop scanner that can print on the LaserWriter at 300 dpi; it could really give the facsimile-machine industry a kick in the pants.

The last product, which is the most amazing, translates Apple II software into Macintosh applications that can execute directly from the Mac's desktop. The company is initially marketing this product to developers for the purpose of porting software from the Apple II to the Macintosh. The product is so intriguing that I'll be flying down to Abaton ASAP to investigate, and *A+* will report on it in an upcoming issue. In the meantime, you can contact Abaton at 1526 Cloverfield Blvd., Santa Monica, CA 90404; (818) 905-9399.



BUSINESS FILEVISION

Telos Software Products of Santa Monica, California, has released a new version of its innovative Filevision visual database called Business Filevision. The new Business Filevision, which requires a 512K Mac with an external disk drive, incorporates many features that users of the original Filevision program had requested from Telos, such as the ability to import digitized images and MacPaint files. Other highlights include the ability to work with files up to four megabytes in size, improved database functions, and a data import/export utility that allows sharing of data with existing Macintosh, IBM PC, and Apple II programs that use either DIF, SYLK, or ASCII data formats.

PUT A MAC IN YOUR II

As Maggie Canon and I report in this month's cover story, the Apple II is beginning to tread on the Macintosh's turf with the introduction of products such as the 3.5-inch disk drive and Catalyst 3.0. Well, how would you like to put a faster fat Mac inside your Apple II? Mark Mastrianni of Enhancement Technology recently told me that his company will soon introduce a 68000 coprocessor board for the Apple II series of computers that has a faster processor than the Macintosh's, 512K of on-board RAM, and an AppleTalk connector.

According to Mastrianni, the board will sell for $595 and will be bundled with a software clone of the popular Lotus 1-2-3. Although the board does not let you run Macintosh software, it does give your Apple II more power than the average Macintosh. For further details, contact Enhancement Technology, P.O. Box 1267, Pittsfield, MA 01202, (413) 445-4219.

ELECTRONIC BLACKBOARD

Have a hard time taking notes? Ever forget what the speaker wrote on the blackboard? Well, Okidata, of dot-matrix-printer fame, is marketing a new electronic blackboard called Copyboard that prints paper versions of whatever is written on the blackboard. Although the Copyboard costs around $3000, it has been such a success that Fujitsu, Panasonic, and Ricoh are all planning to introduce their own versions soon. The electronic blackboard seems like the ideal solution for folks who sometimes nod off during a lecture or conference. +

THE AMERICAN BUS NEVER LOOK

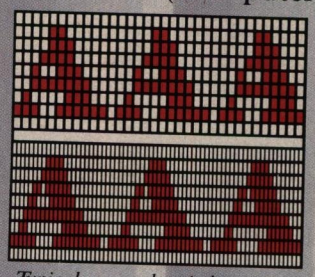
SONY BRINGS THE BRILLIANCE OF TRINITRON® TO COMPUTER MONITORS.

From now on, business people all across America can enjoy all their favorite programs on a Sony Trinitron.

Because Sony proudly unveils the first computer monitors in the world endowed with Trinitron technology. RGB monitors which, in the laudatory words of Computer Buyer's Guide and Handbook, give you "crisp, brilliant, utterly flicker-free images that take the eyestrain and headaches out of both color graphics and text or data processing."

We've achieved this through technological breakthroughs that literally divide the computer-monitor world in half: Sony's, and all the others'.

First, the patented one-gun, one-lens Trinitron system itself, with a picture so vivid, so critically lifelike, it's become a legend.

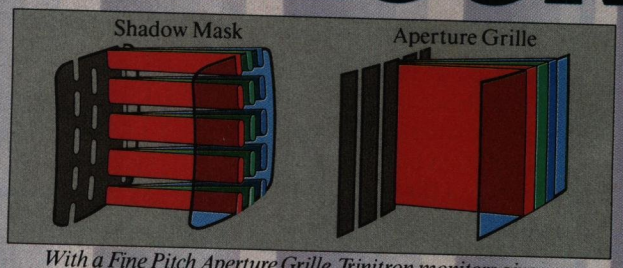


Typical coarse dot pitch vs. Sony Trinitron super-fine dot pitch.

Second, Sony Trinitron's exclusive Super Fine Pitch™ Aperture Grille. It dramatically increases the number of red, green and blue electrons reaching your screen. Which dramatically increases the vibrance and brightness of the colors reaching your eyes.

And third, a dot pitch so fine, the horizontal resolution of a Sony is not only the highest in its class, but "close to that of models costing twice as much" (Computer Buyer's Guide and Handbook).

You can enjoy this extraordinary picture quality on screens ranging from 9″—the first ultracompact monitor in the business capable of displaying 2,000 characters of text—to 13″—a model that lets you switch from software to soaps at will by merging a computer monitor and full-feature TV into a single unit.



With a Fine Pitch Aperture Grille, Trinitron monitors give you dramatically brighter colors than the conventional shadow mask.

They're all compatible* with the IBM® PC, Portable PC, PC/XT and PC/AT through built-in RGB circuitry. And compatible with most Apple® and other personal computers through optional accessories.

So call Sony for further information at 1-800-222-0878 (In New Jersey, 1-800-222-0879).

Because there's no longer any reason to view your technologically-advanced computer through a technologically-deprived monitor.

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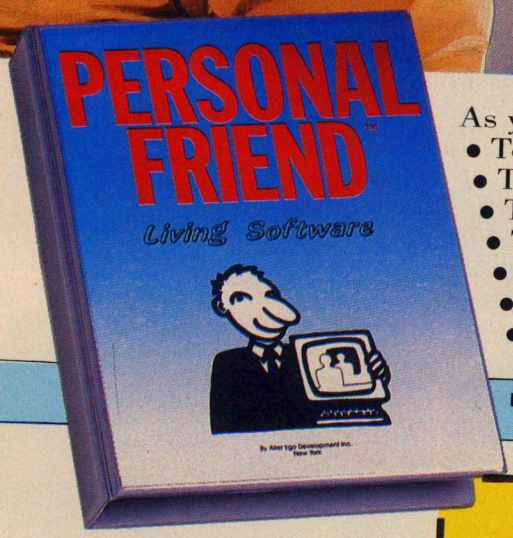
INESS PICTURE HAS ED BRIGHTER.

Are you the type of person to refuse a friendly hand ?



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▶ COVER STORY/BY MAGGIE CANON AND FREDERIC E. DAVIS

Apple's Bevy of *New Products*

APPLE BOLSTERS ITS PRODUCT LINE WITH EIGHT ADD-ONS.

In last month's issue, we hinted that Apple had a lot in store for you. This month we bring you the details of Apple's new line of products that are for sale this fall, just in time for the traditional end-of-year shopping spree.

The new products include goodies for just about every Apple owner. In response to its customers' needs, Apple has just introduced a 3.5-inch floppy-disk drive for Apple-II-series computers with a whopping 800K of storage; a one-megabyte memory-expansion card for the Apple II, II Plus, and IIe; composite color monitors for the Apple IIe and IIc that can clearly display 80 columns of text; a new color version of the ImageWriter printer for use with any Apple computer; a 300/1200-bit-per-second (bps) modem that hangs from a wall socket; and a 20-megabyte direct-connect hard disk for the Macintosh. (For specifications on all of these products, see pages 24-25.)

At press time, the price and availability date of one of the products, the Apple II Memory Expansion Card, were not yet determined.

Color Solution for Apple II

Apple II owners who want color have had to contend up to now with the inability to print out the colors that appear on their screen. In order to bring

color to the printed page, Apple is introducing a color printer, the ImageWriter II. The ImageWriter II is Apple's first expandable printer; it has a multipurpose expansion slot. Apple is initially offering a 32K print-buffer card and an AppleTalk card for use in this slot. The print buffer lets you continue using the computer while the printer is printing. The AppleTalk card allows Macintoshes and/or Apple IIs using the AppleTalk network to share the ImageWriter II. You can also count on third-party developers to come up with other useful cards to put in that slot.

The crisp color printing is produced by a continuous, four-band, cloth, color ribbon. Each ribbon prints up to 50 pages, depending on how dark you like your color images—a definite improvement over color printing with the Scribe printer from Apple. When you use a black ribbon, you can expect about a two-million-character life span.

The ImageWriter II operates in three modes: Draft, Correspondence Quality, and Near Letter Quality. The ImageWriter II is rated at the lightning-fast speed of 250 characters per second (cps) in the Draft mode, but our tests have shown that the actual speed is somewhat slower. The ratings have the printer slowing down to 180 cps in the Correspondence mode and creeping along at 25 cps in the Near Letter Quality mode because of the multiple passes the printhead must make in order to get the highest print quality. The ImageWriter II can also print detailed graphics with line-spacing increments of 1/144 of an inch at a maximum density of 160 dots per inch.

Apple has also introduced a companion product to the ImageWriter II, a high-tech-looking automatic cut-sheet feeder that lets you put a stack of letterhead paper or other sheets of paper in the printer. Everything except the AppleTalk option was available in late September. The ImageWriter II is $595, the 32K print-buffer card is $99, the sheet feeder is $225, colored printer ribbons are $13.95 each, black-and-white ribbons are $10.50 for six, and the cable is $29.95.

Color, Color Everywhere

As part of a total color package for Apple II computers, Apple is bringing out two composite color monitors, the ColorMonitor IIe (which also works with the Apple II and II Plus) and the ColorMonitor IIc. No special adapter card, such as an RGB interface, is necessary for hooking up the monitor. Not only can you have rich, clear color without the need for an RGB interface, but the new monitors can also display clean, crisp 80-column text, thanks to an Apple engineering advancement.

The monitors are electronically and functionally identical. The difference is in the styling of the case: The IIc monitor is snow white, and the IIe monitor is the classic beige of the Apple II, II Plus, and IIe. The ColorMonitor IIe and IIc are $399 each. The IIc monitor has an optional stand for $25.

Some third-party software developers are already working with Apple to upgrade their programs to take advantage of the new color possibilities. Products that have been modified to take advantage of color printing with the ImageWriter II include Brøderbund's Dazzle Draw and Print Shop, Baudville's Blazing Paddles, Xerox's Sticky Bear Print, Software Publishing's PFS:Graph, Sorcim/IUS's SuperCalc3a, and approximately 20 others.

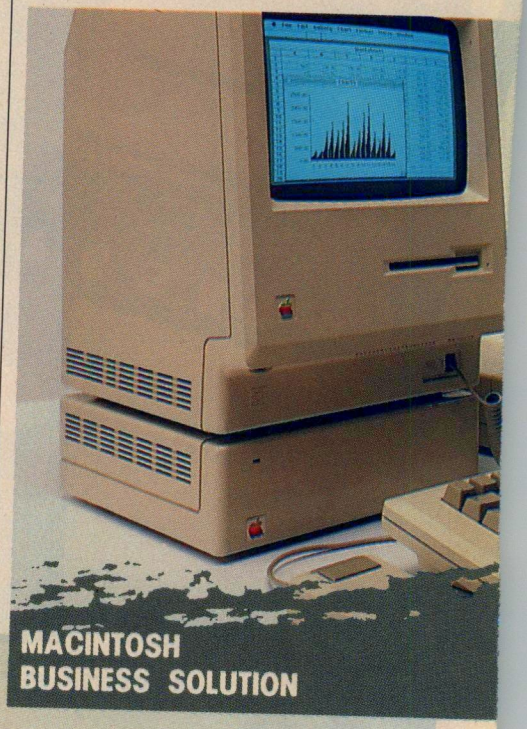
Upgrade policies differ with each software developer. For next month's issue, we are compiling a chart that will give you more details on the third-party products.

New Apple II Products for Business

With the addition of the high-capacity disk drive and the memory-expansion card, businesspeople can increase the storage capacity of their Apple II system beyond that of the Macintosh.

The UniDisk 3.5, which retails for $499, uses double-sided 3.5-inch diskettes that each provide 800K of on-line storage—more than five times the capacity of the current 5¼-inch diskettes that the Apple II has been using since 1978. The UniDisk 3.5 works with both the ProDOS and Pascal operating systems. The new drive uses the same durable, convenient diskettes that you use with the Macintosh, except that the Mac's disk drive can read only one side of the diskettes, which means that the on-line storage capacity is only 400K. These diskettes are not only smaller than the regular 5¼-inch diskettes, but they also operate faster, which improves the performance of the system.

The new drives will come with a software utility called Catalyst 3.0—its



MACINTOSH BUSINESS SOLUTION

APPLE II COLOR SOLUTION

The Apple IIc and IIe advanced-technology composite color monitors display brilliant color and crisp 80-column text without the need for an RGB board or adapters. These monitors, coupled with the new ImageWriter II color printer, provide a complete, low-cost color solution.

DOW/CLEMENT PHOTOGRAPHY

High-density double-sided 3.5-inch disk drives with 800K of storage, plus Apple's new megabyte memory-expansion card can boost the Apple-II-series memory capabilities to beyond the capacity of the Macintosh or IBM PC standard configurations.

APPLE II BUSINESS SOLUTION

The Hard Disk 20 direct-connect drive and the new hierarchical file system boost the Macintosh's speed and performance to make it a more powerful business computer.

price and release date are yet to be announced—that provides a program selector whose function closely resembles that of Catalyst IIe (see "Catalyst IIe" in our October issue, pages 95–100). Catalyst 3.0's striking improvement over Catalyst IIe is that it uses the double-high-resolution graphics capabilities of the IIe and IIc to recreate the Macintosh user interface with remarkable accuracy.

When you first look at an Apple II with Catalyst 3.0 on the screen, you may well mistake it for a Macintosh. It's all there: a menu bar, pull-down menus, icons, and so on. You can drag an image of a file to another disk to copy the file, just as if you were using a Macintosh. The operation of Catalyst 3.0 is amazingly fast, too. It really goes to show that you can still squeeze a lot of power out of an Apple II.

Since Catalyst is only a program selector and filing utility, once you select an application program, the selected program takes control and the Maclike features are present only if the application program provides them. With adapted programs such as International Solutions' Mouse Calc, Roger Wagner Publishing's Mouse Write, Brøderbund's Dazzle Draw, and others on the way, your Apple II may begin to look and operate more and more like a Macintosh.

One of the key benefits of the new high-capacity 3.5-inch drives is that they let you run larger, more-advanced business programs on your Apple II. Many serious business applications for the Apple II were impractical with the old 5¼-inch drives. Anyone who has struggled with a multiple-diskette program such as DBMaster appreciates that the old drive format was just too limited for serious business use.

Previously, you almost had to have a hard disk on your system if you wanted to use your Apple as a serious business tool. For example, the Manzanita accounting program we reviewed in our September issue (see "Double-Entry Accounting," pages 26–28) required a hard disk. Now you can run the Manzanita program on an Apple II with two of the new 3.5-inch drives. Also, programs such as spelling checkers that are too large to fit on 5¼-inch diskettes will now be available on the 3.5-inch diskettes. Many developers are planning to bundle several programs together on a single 3.5-inch diskette.

The Apple II Memory Expansion Card is another exciting product that will be able to upgrade your Apple II. The Apple II Memory Expansion Card will let you add up to a megabyte of additional RAM to an Apple II, II Plus, or IIe. It will come in 512K and megabyte (1024K) versions. You will be able to use the additional RAM either to increase the work space in the computer for expanding spreadsheets and increasing your AppleWorks desktop space, or you'll be able to employ it as a RAMdisk to boost the speed and performance of your system beyond what even a hard disk can do.

Apple Personal Modem 300/1200

Apple has also redesigned its modem. A striking feature of the new modem is that it hangs from a wall socket, which frees up desk space. Another advantage of this modem is that it is 100% Hayes-compatible, which means that it can work with virtually all popular software. Its list price is $399, and the modem cable is $29.95.

Macintosh Hard Disk 20

Macintosh owners can now buy an Apple hard disk for their system that is only three inches high and sits directly underneath the Mac, which means it does not take up any extra desktop space. One benefit of the Hard Disk 20 is that it raises the Mac closer to eye level, making the screen easier to view. Since the Hard Disk connects to the disk-drive port, it operates at a faster speed than do the older hard disks that connect to one of the Mac's serial ports.

The Hard Disk 20 comes equipped with a disk-drive connector on the back that allows you to daisy-chain another Hard Disk 20 and/or a regular external disk drive to the Mac. The Hard Disk 20 has a new hierarchical file system that corrects some of the deficiencies of the previous Mac hard disks. Apple also has the long-awaited Switcher ready and is selling a Switcher Construction Set that lets you develop your own integrated software applications. Pricing for the Switcher will be determined by individual dealers.

Just the Beginning

This article has provided just an overview of Apple's fall crop of new products. These innovative products demonstrate Apple's renewed commitment to the Apple II by allowing users to bolster the performance of their systems with add-on hardware. Watch the upcoming issues of *A+* for more technical and tutorial material on these add-ons. ✚

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Learning Tree Computer
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Right Byte
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Softwaire Centre Int'l
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Fresno

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Software World
Redding
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Chico
The Cat
Vallejo
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Citadel Computer
Colorado Springs
Kazoo & Company
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Georgia
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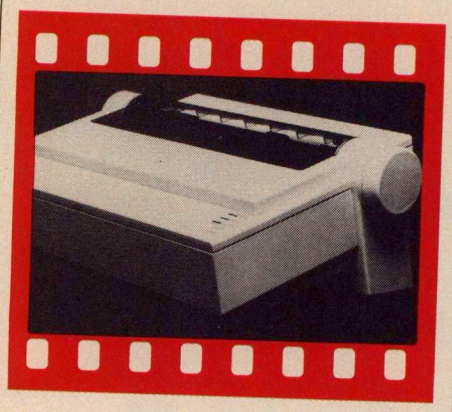
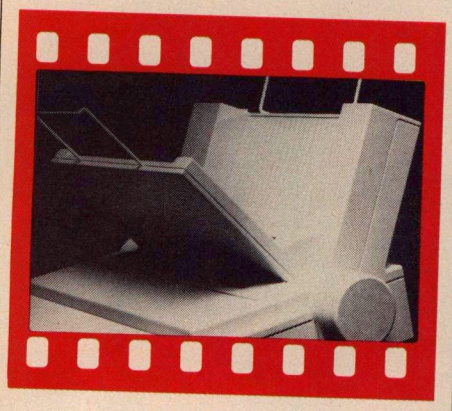
New Products





IMAGEWRITER II

Print Speed
250 cps (characters per second) in Draft mode
180 cps in Correspondence mode
25 cps in Near Letter Quality (NLQ) mode

Character Format
7 × 9 alphanumeric symbols (fixed)
16 × 8 user-programmable NLQ

Line Spacing
6, 8, lines per inch plus n/144 inch

Graphic Densities
72, 80, 96, 107, 120, 136, 144, and 160 dots per inch

Maximum Dots per Line
576, 640, 786, 856, 960, 1088, 1152, and 1280—depending on graphic density

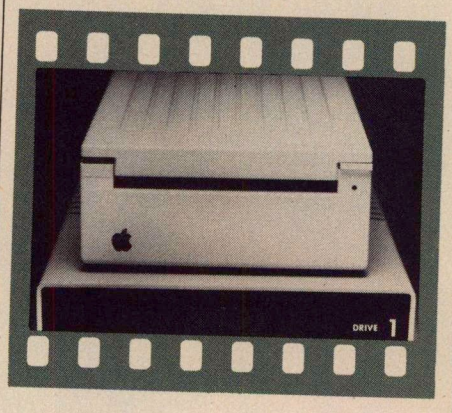
Paper
Width: 3 to 10 inches
Thickness: .05 to .28 inches
Copies: Original plus three
Optional: Sheet feeder

Ribbons
Type: Fabric, continuous loop
Life: 2 million characters (typical)
Black and four colors (black, magenta, cyan, and yellow)

Interface
RS-232 serial
Buffer: 1K characters (standard), 32K optional
Transmission rate: 300, 1200, 2400, and 9600 bps (operator-selectable)
Connector: Mini 8-pin
Optional: AppleTalk

Requires: any Apple computer

Price: $595



UNIDISK 3.5

Recording Media
Disk diameter: 3.5 inches
Recording surfaces: 2
Tracks per inch: 135

Capacities
Unformatted capacity: 1246K
Formatted capacity: 800K

Performance
Seek/settle time (track to track):
Max 6 ms. track to track
Max 30 ms. head settle time

Drive Dimensions
Length: 7.87 inches
Width: 4.72 inches
Height: 2.01 inches

Operating Systems
ProDOS, Pascal 1.3

Requires: Apple II, II Plus, IIe, or IIc

Price: $499

APPLE COLORMONITOR IIe
APPLE COLORMONITOR IIc

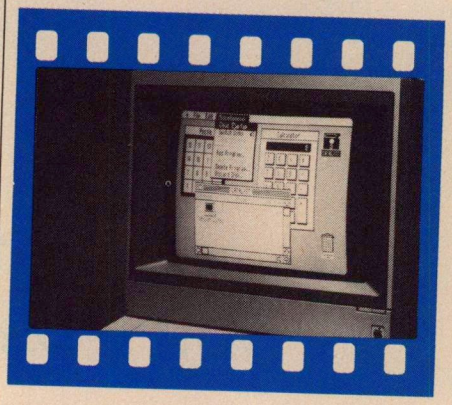
Electrical
Input: composite (NTSC) video
Viewing screen: 13-inch diagonal
Resolution: 0.52mm dot pitch; up to 640 × 200 pixels (depends on computer; up to 560 × 192 pixels when used with the Apple II, II Plus, IIe, or IIc)

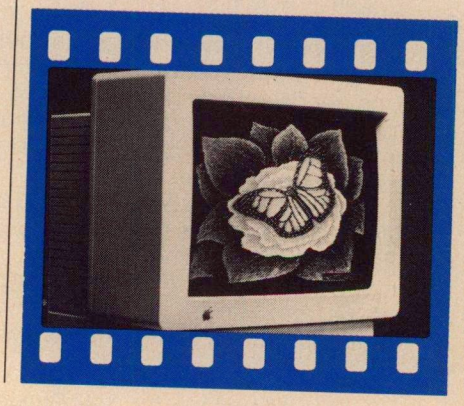
Text capability: 80-column monochrome; 40-column color

Video bandwidth: 3 MHz in Color mode; 12 MHz in Black-and-White mode

Scan rates: 15.7 kHz horizontal; 60 Hz vertical

Dimensions—ColorMonitor IIe
Width: 14.4 in. (36.7 cm)
Height: 12.4 in. (31.5 cm)
Depth: 14.4 in. (37.5 cm)
Weight: 27.5 lb. (12.5 kg)
Screen diameter (diagonal): 13 in. (33 cm)





AT A GLANCE

ALL OF THESE NEW PRODUCTS ARE FROM APPLE COMPUTER, INC. (20525 MARIANI AVENUE, CUPERTINO, CA 95014; (408) 996-1010), WHICH PROVIDED THE FOLLOWING TECHNICAL SPECIFICATIONS.

Dimensions—ColorMonitor IIc
Width: 13.4 in. (34.0 cm)
Height: 12.4 in. (31.5 cm)
Depth: 14.4 in. (36.5 cm)
Weight: 27.5 lb. (12.5 kg)
Screen diameter (diagonal): 13 in. (33 cm)

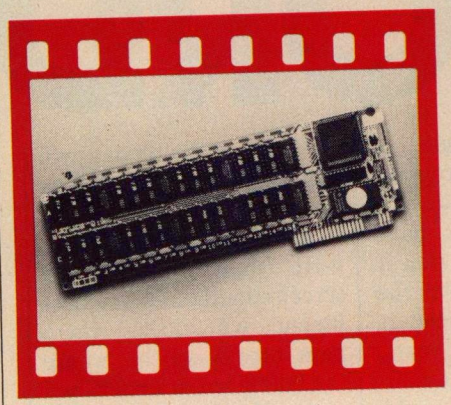
Controls/Connectors—Front
Brightness
Contrast
Color (intensity)
Tint
High-resolution text switch
Power on/off (on the side of ColorMonitor IIc)

Controls/Connectors—Rear
Horizontal hold
Vertical hold
Vertical size

Video-Input Connector
RCA (phono) jack

Requires: ColorMonitor IIe—Apple II, II Plus, or IIe; ColorMonitor IIc—Apple IIc

Price: $399 each



APPLE II MEMORY EXPANSION CARD

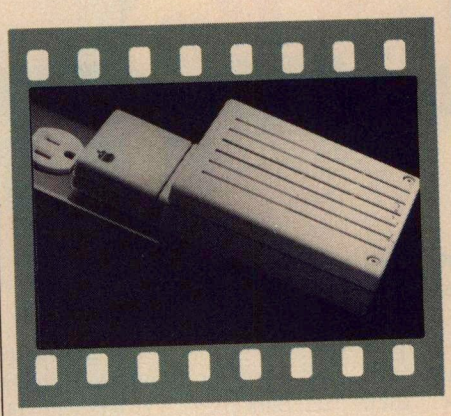
Physical
Standard-slot card for Apple II, II Plus, or IIe (will not work in slot 3 or Aux. slot)
256K RAM standard, expandable to 1 Mb (expansion kits in 256K increments will be available from Apple)
Card includes RAM, ROM, and a custom integrated circuit

RAM
Uses 256K × 1 dynamic RAM
150-ns RAM chips shipped with product; maximum 220-ns access time

Software Access Modes
Self-formatting RAMdisk (ProDOS and Pascal)
If ProDOS or Pascal 1.3 disk is booted, RAMdisk self-formats with appropriate operating system
RAMdisk (DOS 3.3) can be initialized as DOS 3.3 volume(s)—maximum size 400K
Direct Access Memory—built-in firmware handles memory moves for assembly-language programs

Requires: Apple II, II Plus, or IIe

Price: Not determined at press time



APPLE PERSONAL MODEM 300/1200

Data Format
Protocol: asynchronous
Mode: full duplex with echo back

Transmission Speeds
High-speed mode: 1200 bps
Low-Speed mode: 0 to 300 bps

Interface
RS-232C, using a mini-DIN 8-pin connector

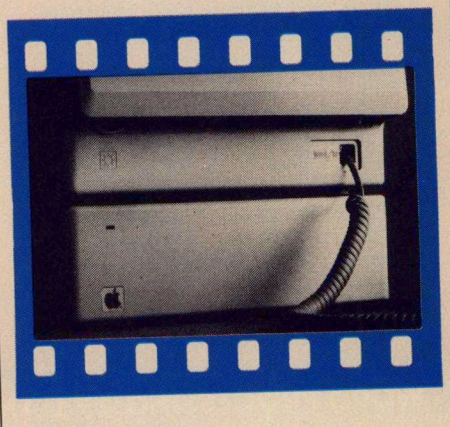
Operating Modes
Auto or manual dial (including redial)
Auto or manual answer

Line Monitoring
Audible (volume is adjustable)
Visual (prints status messages on computer's screen)

Connectors
Two RJ-11 modular telephone jacks
Detachable head with AC plug
Mini-DIN 8-pin jack (for data cable)

Requires: any Apple computer

Price: $399



HARD DISK 20

Storage Characteristics
Formatted capacity: 20.77 Mb
Data surfaces: 4
Heads per surface: 1
Block size: 532 bytes (512 user data, 20 system data)

Drive Characteristics
Average seek time: 85 ms
Data-transfer rate: 7.5 MHz
Drive start-up time: 15 seconds

Interface
Cable: DB-19 female connector (to Macintosh external disk-drive port)
Expansion port: DB-19 male connector
Transfer rate: 500 Kbits/second (serial)

Physical Dimensions
Height: 3.1 in. (78.5mm)
Width: 9.7 in. (246mm)
Depth: 10.5 in. (266mm)
Weight: 7 lb. (3.2 kg)

Requires: Macintosh

Price: Not determined at press time

A productive feature that many users seem to want these days is the ability readily to import sections of text from other programs and documents into letters and reports—the process is sometimes called integration. If such a function would make your final output more meaningful and readable, then insist that your program be able to paste in sections of a spreadsheet or sorted listings from a database report. Conversely, some graphics programs can accept text from your word-processing program for pasting into a full-page picture for posters or flyers. Make sure the graphics and word-processing programs are mutually compatible.

WORD PROCESSING/BY DANNY GOODMAN

DEMANDING MORE FROM WORD

Despite the profusion of word-processing software for the Apple II series of computers, programmers keep coming up with new programs that pack more power and flexibility for every level of expertise. That's great news, because today we can demand much more from word processing than we ever could in the past—provided we know what to look for.

If you are venturing into word processing for the first time, it is vitally important to know what to expect from the latest generation of word-processing software to make sure you get the most power your Apple II can offer. Similarly, experienced word-processing users would do well to reevaluate their current software to see if something new might do a better job.

Here are the kinds of word-processing features and power you should be asking for today.

Make It Your Way

Your first requirement should be that the program allows you to format documents the way *you* want them, not the way that some faceless programmer believes they should be. This consideration may seem obvious, but you can easily get sidetracked learning "the way it is done" on a new program, while not noticing that the program doesn't let you place the page number in the page corner you prefer or that it won't let you create the same two-line page headers you've been using for years. This oversight is most common to newcomers, who may be so enthralled at having their keystrokes saved on disk (thereby eliminating the dreaded retyping of the final draft) that they silently give up page-formatting abilities they are accustomed to from their old typewriter days.

Along these lines, a word-processing user also should be concerned with the way a document will look once it is printed. You should therefore demand that word-processing software show you on the screen exactly how the document will look—where page breaks will be, where the boldfaced or underlined text will stand out, and so on. Ideally, you should be able to see these details while you're creating the document, not just when you use the Print to Screen option from the Print menu. A 128K Apple II is capable of on-screen formatting if the software is up to the challenge.

When it comes to printing, be sure the program you select can make your

ROBIN PETERSON

A
Accent marks, 59
@ cursor, 6
Address labels, 114
Address lists, 113–15
A (indicating all), 104
Alphabetizing, 105
Angled brackets, 129–31
Appending text, 52
Apple Writer, 97
Apple Writer 1 files,
Arrow keys, 2, 149
Asterisk, 15
Audiovisual scripts, 111

B
Backspace (CTRL H), 55
Backup disk, 3, 149
Beginning of text, 8
Billing, 134–37
Boilerplate, 46
insertion, 68–70
Boldface, 59
Bottom line (BL), 34–36
blank, 110
last page, 75

PROCESSING

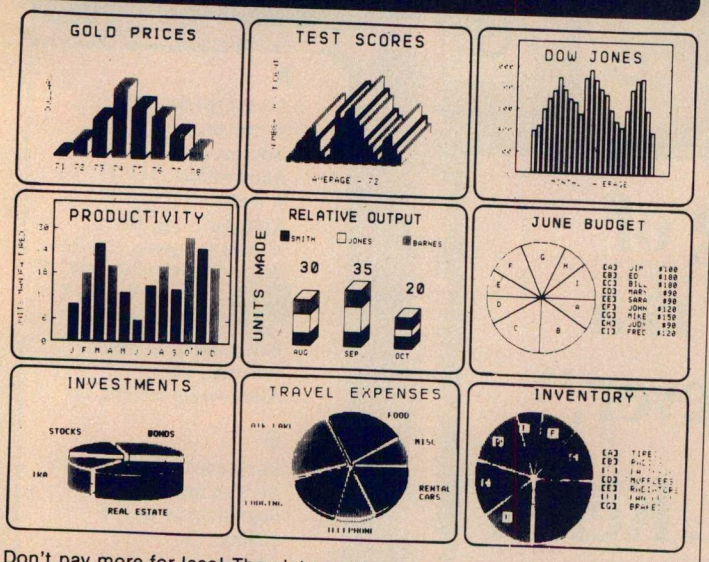
printer do the tricks it was born to do. Thanks to price reductions on fully featured computer printers, excellent print quality and a variety of print effects are within reach of even budget-conscious wordsmiths. Just because a printer has tons of nifty features doesn't mean that any old word-processing software will turn it into a virtuoso, however. Far from it.

Because different printer brands and models respond to unique sets of codes for printing enhancements, such as boldfacing and double-width characters, you must make sure that the word-processing program you're contemplating is equipped with a "printer driver" for the kind of printer you use now or plan to use in the future. A printer driver is an ancillary program that you run once to insert your printer's special codes into the word-processing program. Then, when you want the printer to change type size from 10 to 15 pitch, for example, the program will send the appropriate code that your printer understands.

You'll also have to see if the program's printing capabilities meet your expectations. Though your printer may be capable of fancy effects, the program may not be able to access them. If you want your printer to turn cartwheels for you, look for programs that not only have many print options built in (superscripts and subscripts, different pitches, emphasized type, and so on), but also let you insert printer codes for your printer's esoteric features when you need them (the printer's manual should list all of its codes). For example, many printers let you send codes that squeeze characters and lines of text together just enough to fit a 1¼-page press release onto a single side, while maintaining legibility. That kind of flexibility is sometimes essential.

A productive feature that many users seem to want these days is the ability readily to import sections of text from other programs and documents into letters and reports—the process is sometimes called integration. If such a function would make your final output more meaningful and readable, then insist that your program be able to paste in sections of a spreadsheet or sorted listings from a database report. Conversely, some graphics programs can accept text from your word-processing program for pasting into a full-page pic-

AlphaChart!



Don't pay more for less! The pictures shown above are examples of charts created with AlphaChart!, perhaps the most powerful and friendly Apple II chart program on the market. Within seconds, keyboard-entered data can be converted into picture-perfect pie or bar charts, in 26 user-selectable styles, automatically scaled and labelled, and in color or black and white. And if you want to customize your charts by adding extra artwork or text, or display them in a slide show, AlphaChart! comes with these valuable extras.....

A **slide projector,** for orchestrating automated, stand-alone screen presentations of a series of charts, timed and sequenced by the user. This program alone is worth the cost of the disk. It can be used with any graphics files created with any program.

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A **shape table editor,** for creating special shapes for your charts. These shapes can also be used for animation in your programs! A sample animation program shows how to do it..

AlphaChart! includes a screen-dump program for printing your charts on paper. AlphaChart! is more! Just read what these people have to say about it...

"I noticed the advertisements for Spectral Graphics' AlphaChart! program and figured that, with a money-back guarantee, I would try it. Boy, am I glad I did! This is a fantastic program. You can master its many varied capabilities in less time that it would take to describe them. I would recommend it to everyone, even if you have absolutely no need for a graphing program. It's just fun to play with." **S.A. Smith, San Bernadino, Calif... letter to SOFTALK, June, 1984, page 14.**

"The software does much more than the advertisement suggests. Without question, this is among the best buys in software that I have ever come across, and certainly among the best written. It is extraordinarily easy to use, very well thought out, and priced to kill your competition (which I wish you every success in doing)." **Anthony J. Scriffignano, North Caldwell, New Jersey.**

"I have long been distressed by the lack of software available in the scientific academic community. At last there is a simple yet robust graphics program applicable for our purposes: AlphaChart!, by Spectral Graphics Software. Business folks and scientists alike will really appreciate how user-friendly it is; I was able to produce my first three-dimensional, multi-colored, labeled bar graph within five minutes of booting the disk–without reading my documentation. I would have had to pay a scientific illustrator much more than the whole program costs just to produce that one graph....you can't do without this gem." **John B. Iverson, Richmond, Indiana...letter to SOFTALK, April, 1984, page 23.**

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ture for posters or fliers. Make sure the graphics and word-processing programs are mutually compatible.

Enhancements

Most writers and word-processing specialists have a limited number of formats into which the majority of their work falls. Those formats have certain peculiarities that the word-processing program must address. Someone who processes academic material, for example—a word-processing service located near a college campus is a likely setting—will need a program that footnotes automatically. Another enhancement that proves most useful in long documents such as reports and formal presentations is automatic generation of tables of contents and indexes. These postprocessing tasks are relatively new possibilities in the world of personal-computer word-processing software, but they are available.

In fact, a few word-processing programs let you add these enhancements through add-on modules. WordStar (which requires a CP/M adapter board on the Apple II Plus and IIe) and AppleWorks are such popular programs that third-party companies have developed some supplemental packages that perform many practical postprocessing chores.

Perhaps the most beneficial postprocessing accessory is a spelling-checker program. Typically, such a program compares each word in a document against thousands of words in a disk dictionary. The relatively small disk-storage space on an Apple II disk inhibits the size of the dictionary, but such a program can catch many inadvertent typing errors of even spelling-bee champs.

Client Compatibility

An important consideration, particularly for professional writers, is that word-processing software must often be compatible with the kinds of software running on the computers of clients and editors. The ability to send a manuscript or draft advertising copy to another computer over the telephone (via modem) is becoming almost a necessity, even in previously stodgy editorial settings.

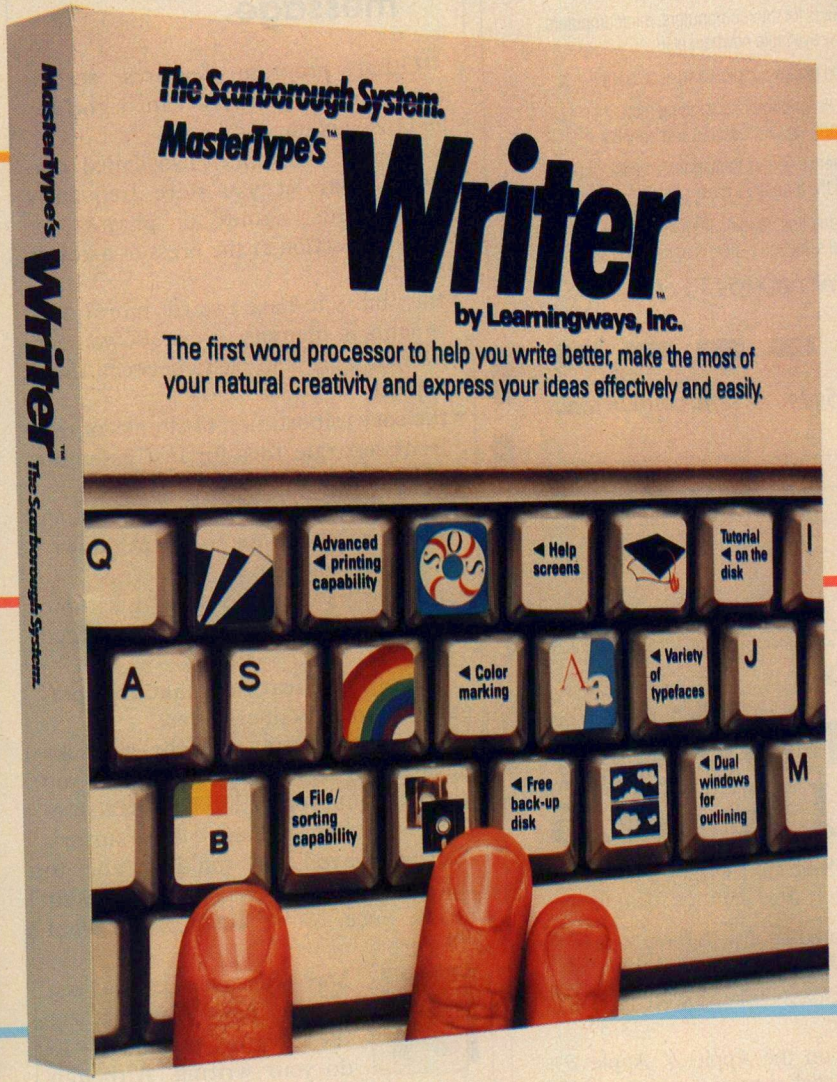
Consult with your current clients to see what kind of files their computers accept. If they can use straight ASCII-character files, then be sure the software you use gives you the option of saving documents as unformatted ASCII ("text only") files. If your clients use Apple II computers, consider matching the software they use—you'll be able to exchange disks directly.

Even the careful shoppers with clear goals in mind may find that no single word-processing program meets all their requirements. The entire word-processing realm is beset by compromises. The biggest one you'll probably encounter is that the more features the program has, the more difficult the program is to learn. WordStar users have grappled for years with the program's enormous command-key and dot-command language, yet the program maintains its appeal because of its variety of functions.

More modest programs, such as Bank Street Writer and HomeWord, almost eliminate the need to learn a command language, but they sacrifice document flexibility. Somewhere in the middle lie programs such as PFS:Write and the word-processing section of AppleWorks that have ambitious abilities and relative simplicity. Remember, too, that as you become familiar with a program, your de-

"...makes turning ideas into text a delight."

—Classroom Computer Learning



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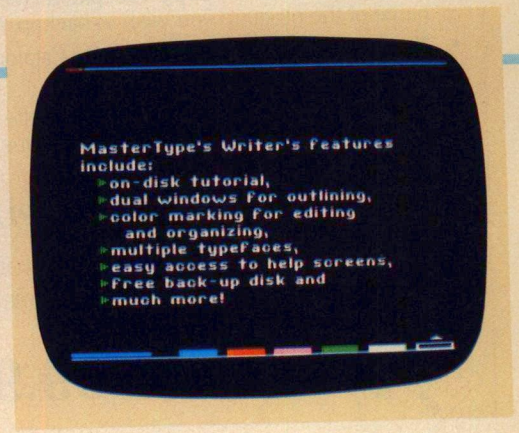

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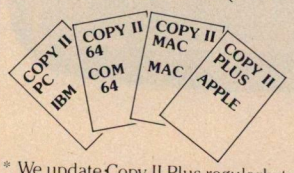

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pendency on help menus will diminish. Be sure you can turn them off to make room for more text on the screen.

The less you have to battle with the program, the more energy you can devote to your message.

Other program features serious word-processing users can rightfully demand include:

- keyboard shortcuts (also called macros), that let you store frequently used words, names, or phrases for quick insertion at the press of a key or two
- the ability to have two (or more) documents in memory at once so you can switch, copy, and paste between them rapidly
- the easy importation of chunks of text from separate files for fast assembly of "boilerplate" documents
- the ability to edit text files from other word processors or from text downloaded via modem
- the ability to merge a mailing list into a document to generate customized form letters

All of these features make the computer a more productive tool.

Word processing can be a tricky business on a personal computer if you go into it unprepared. The "ideal program" is often as elusive as a surfer's "perfect wave," but you'll be able to find a package that meets most of your needs, once you're clear about what they are.

Above all, remember that you are the boss. Avoid letting the software tell you how to do your writing. Although no package will do absolutely everything you need flawlessly, settle for as few compromises as possible. The less you have to battle with the program, the more energy you can devote to fine-tuning your message. ✚

Danny Goodman is the author of the best-selling book Going Places with the New Apple IIc *(Simon & Schuster/Pocket Books) and several other computer books. His articles on electronics and computers appear in many computer and general-interest magazines, and he appears frequently as commentator and product reviewer on the PBS-TV series "The New Tech Times."*

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PRINTERS

ZAPPING THE PERSONAL-COMPUTER MARKET

Recent developments in the technology of laser printing are bringing the price of these printers down enough for them to make a significant splash in the personal-computer market. Their high-resolution printing and built-in processing chips let you include many different fonts (typefaces of various sizes and styles) in any document, as well as print graphics and business forms quickly and quietly from your desktop.

Although laser printers rank among the most expensive output devices on the market for personal computers, their networking capabilities bring the cost per station down considerably. Firms with a high volume of business letters and reports will consider the added benefits of speedy and quiet production well worth the investment.

In this article, we look at three laser printers currently compatible with the Apple II series and the Macintosh: the Hewlett-Packard LaserJet and LaserJet PLUS, and the Apple LaserWriter. All these printers use the same Canon print engine, but the additional processing chips HP and Apple have added give the printers markedly different capabilities. Hewlett-Packard sees the LaserJets as quiet alternatives to daisy-wheel printers, and their simple processing keeps the price down. Apple's more expensive LaserWriter, on the other hand, can handle a large variety of typefaces and complex page-composition systems, making it a relatively low-cost typesetting alternative.

The Technology

Laser printers per se are not new; the earliest models were designed to be fast and quiet alternatives to mainframe and minicomputer line printers and were priced in the tens and hundreds of thousands of dollars. Recently, the technology and demand have changed enough that the price of laser printers has dropped dramatically, making them the latest entry into the market for high-quality output from business microcomputers.

TYPICAL CONFIGURATIONS

HARDWARE
Apple II system
HP LaserJet printer
Apple Super Serial Card
Male-to-male standard RS-232 cable

SOFTWARE
Apple Writer (Control-V embeds Escape codes for the printer)

HARDWARE
Apple Macintosh system
HP LaserJet printer
Apple serial cable

SOFTWARE
Laserstart installation disk—enables you to print text and graphic files created with any Macintosh program

HARDWARE
Apple Macintosh system
Apple LaserWriter printer
AppleTalk cable

SOFTWARE
LaserWriter installation program (comes with printer and installs driver and software for Courier, Times, Helvetica, and Symbol fonts—any Macintosh program prints to the LaserWriter without modification)

HARDWARE
Apple II system
Apple LaserWriter printer
Apple serial cable

SOFTWARE
None currently available

Canon is responsible for coming out with one of the first low-cost laser-technology engines, the LBP-CX10, which is the guts of Canon's series of desktop copiers as well as Hewlett-Packard's LaserJet and LaserJet PLUS; Apple's LaserWriter; and other printers by BDS, Corona, QMS, Imagen, and Canon. Printing at 300 dots per inch (dpi), the Canon engine produces output that looks like typeset text to most eyes. This resolution is considerably denser than the 120-dpi resolution of the Epson FX-80, for example, but much coarser than the resolution of typesetting machines, which falls in the range of 1200 dpi and higher (see figure 1). The laser technology is capable of these higher resolutions, but Canon chose 300 dpi to keep the price down.

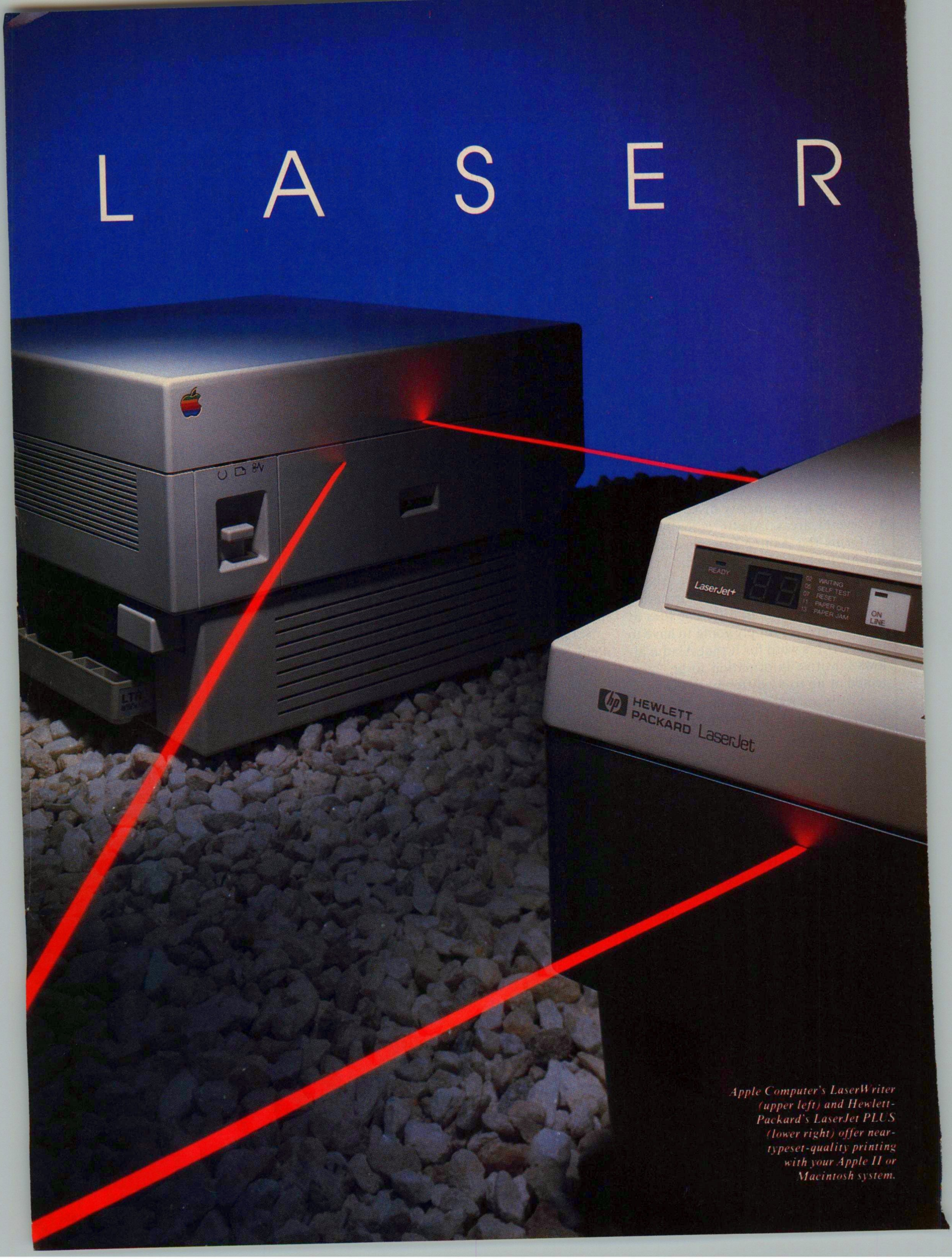
The engine itself is capable of printing eight pages per minute, though pages with bit-mapped fonts and graphics usually take longer on all these printers, and the HP's cartridge fonts seem to process output faster than the LaserWriter's built-in PostScript fonts. To get an idea of what this speed means compared to that of other printers, you need to convert the characters-per-second (cps) measure that is common for most printers to the pages-per-minute measure of the laser printers' performance.

Let's assume that most text programs print 65 characters in each 6.5-inch-wide line of text, with about 54 lines of text per page (3510 characters per page). It turns out that the slowest high-resolution dot-matrix printers can grind out only .2–.5 pages per minute, lower-resolution dot-matrix printing yields .6–1.7 pages per minute, and fast ink-jet printers such as HP's ThinkJet produce 2 pages per minute.

Laser technology uses optics to convert an image from the electronic signals that come in from the computer terminal into an exact mirror image of the final page on a magnetized drum surface (see figure 2). A laser is a beam

DAVID BISHOP

L A S E R



Apple Computer's LaserWriter (upper left) and Hewlett-Packard's LaserJet PLUS (lower right) offer near-typeset-quality printing with your Apple II or Macintosh system.

ine the frustrations Aladin has in store for less-initiated users.

I finally managed to get the semblance of a database going, but only after several sessions during which I did much experimenting, found myself returned to the Pascal command line several times, and filled sheets of paper with handwritten notes. On more than one occasion, my response to a prompt inexplicably made the program reboot.

Before long, I was ready to say goodbye to Aladin and swear eternal allegiance to dBASE II; even the slow DOS transactions of the Data Factory began to look attractive. Devotion to duty prevailed, however, and I stuck to Aladin long enough to determine that it does indeed have impressive features—if only you can get to them.

I might even go so far as to say that, of all the database programs I have used on the Apple-II-series and Apple III computers, Aladin is the only match I have found for dBASE II. This comment holds true only when you use Aladin with a high-capacity disk, however. In several areas, Aladin actually outperforms the Ashton-Tate classic, and not all its boasts are idle. I didn't put this assertion to the test, but Aladin probably does let you "pull information from as many as 190 different files at once," and I am simply going to have to take A.D.I.'s word for it that Aladin allows sensitive information to be "protected at up to 44 different levels."

Aladin's data structure is the same for the Apple IIe as it is for the Apple III, which means that files you create on the former can be transferred to the latter. In fact, with the proper configuration, you can use an Apple III to access any Aladin data disk created on any Apple-II-series machine. One advantage of moving an Apple II Aladin file to an Apple III is that you can then enlarge it; that feature is missing from the Apple-II-series version.

Since I have already mentioned dBASE II and Aladin in the same breath, some comparisons might be in order. dBASE II filenames follow the 8-character CP/M convention, but Aladin allows up to 15 characters, 6 of which can go into the actual database name, and the rest for reference, separated by dots.

A file of record albums might be named ALBUMS.JAZZ.85, for example; the JAZZ.85 extensions further identify it as being a file of jazz albums recorded in 1985. Aladin is quite generous when it comes to field names, which may be as long as 32 characters and can include blank spaces. When it comes to the number of fields per record, Aladin shines over dBASE II. The latter's limit is 32; Aladin's is 150 on the Apple II and 500 on the III, with up to 25 and 200 key fields, respectively. Only fields designated as key fields can be sorted, used to search for information, and shared with other files.

Like dBASE II, Aladin comes with a built-in report generator that lets you design and print reports with relative ease, but here again Aladin takes the lead, for it allows the use of data from several files. More than one line can go into each field, which not only is practical but also makes the printed result more pleasing to the eye.

Aladin also boasts of the ability to integrate with a word-processing program, allowing mail merging and blending of graphics and text. I thought I would test this feature, but it clearly favors MS-DOS users. To take advantage of it on an Apple, you have to have a word-processing program or text editor running under Apple Pascal, and not many of them are around. Next, I decided to try the Calculation Module—it sounded positively splendid in the description. Whoops! It didn't exist in the Apple II version.

So the question is: What can Aladin do for Apple computer users? To which I have to reply: Not much. At least I could not find any advantage that made the inherent frustration worth experiencing. ✚

Editor's Note: According to A.D.I., a revised version of Aladin's manual has been available since October 1.

Chris Albertson is a New York music critic who has been using Apple computers since 1979.

▶ PRODUCT INFORMATION

Aladin 2.6
A.D.I. America
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Sacramento, CA 95820
(916) 381-8334

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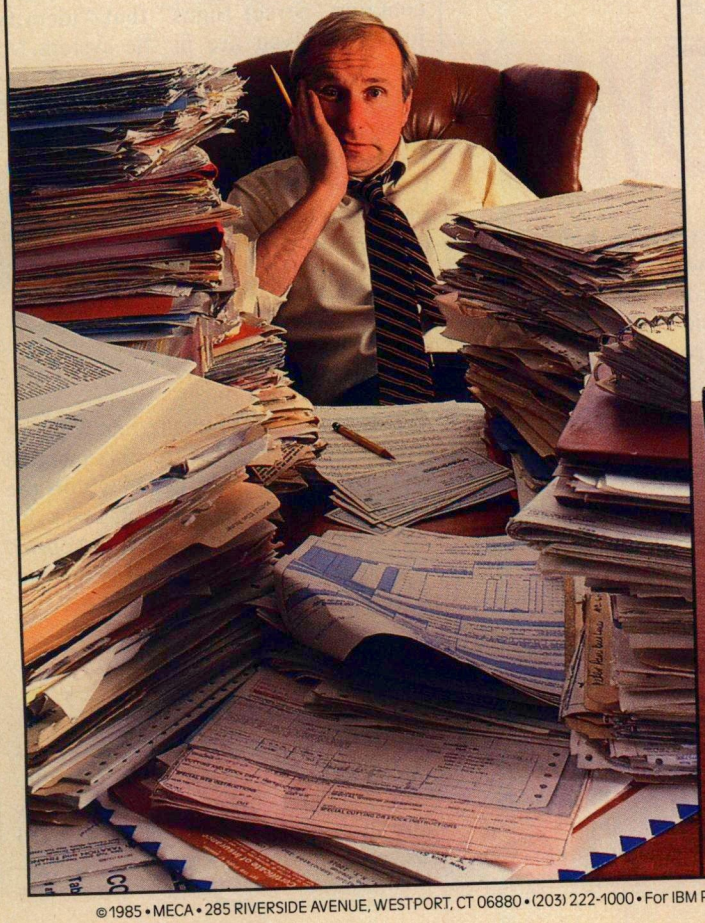

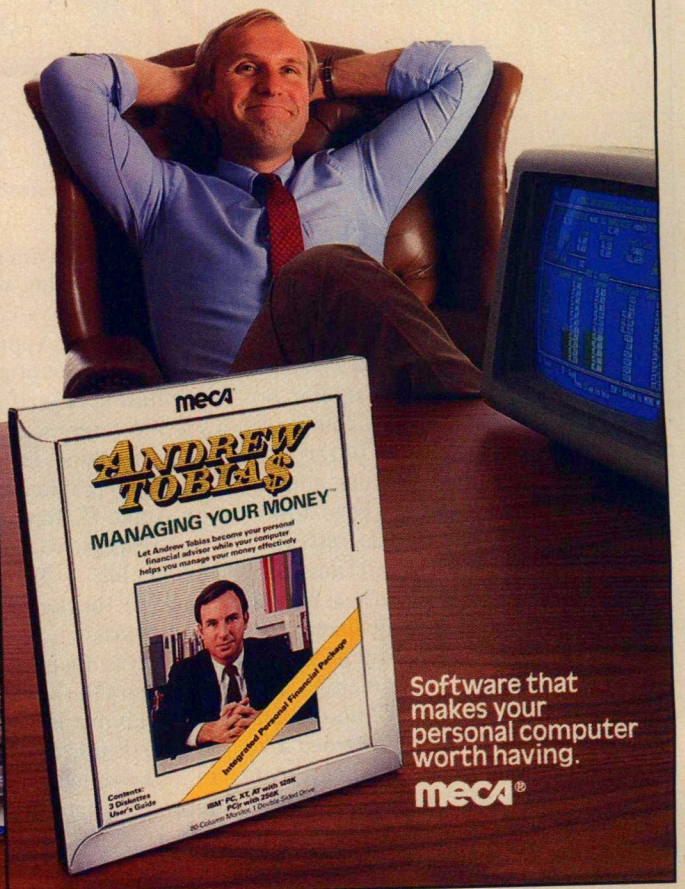

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THE MAGIC OF ALADIN

IT'S HARD TO CONJURE UP.

Lest the title mislead you, Aladin is not a game in which some genie appears at the rub of a key. In fact, it is not a game at all, but rather an advanced database program that the manufacturer, Advanced Data Institute, Inc. (A.D.I.), euphemistically refers to as a "relational problem solver."

According to A.D.I., "Aladin is the most powerful—and the easiest to use—program ever devised. Apple knows it. That's why it officially ranks Aladin the number one program on the market today." Strong claims for a software package that seems to have come out of left field. I mean, here I thought Apple's own favorite—if there was one—had to be AppleWorks, VisiCalc, dBASE II, or some other popular program that helped sell its computers. Why, if Aladin is at the top of the heap, have we not seen its virtues touted? Could it be that Apple has been admiring this software package secretly?

We have all read advertising copy that makes exaggerated claims, but the blurb on this box is so bold that you're inclined to give it the benefit of the doubt. This is not your average me-plenty-powerful software come-on. The more I read, the more it sounded like mainframe talk. Could my Apples really do all that stuff? I needed a good measure of restraint not to tear open the package and immediately test the magic within. Instead, I did the sensible thing. I studied the manual.

A Snap or Not a Snap

"Getting started is a snap," it says. "You set up your system in a simple process that can take less than 10 minutes—a first." The key word here is "can." True, you can conceivably set up some kind of Aladin system in less than ten minutes, but only if you've spent hours, perhaps days, deciphering the manual, because that, I quickly discovered, is one problem A.D.I. has not solved. The attractive ring-binder manual is brimming with information, but it is not always computer-specific. So, for example, Apple II users must refer to a special set of pages marked "Documentation Clarifications," which list all the references that do not apply to their machine. In other words, there is a little less magic when you use Aladin on an Apple II. To really clarify matters in this respect, you must either mark the applicable pages or constantly refer back to the Documentation Clarification pages.

That is not all that bothers me about this manual, though. Written in Pascal, Aladin is available in versions for several brands and types of computers, so—to make things easier for the manufacturer—the manual has a general nature, which muddies things. For example, a tutorial section takes you step by step through a start-up and demonstration, but what is a smooth, step-by-step procedure on one machine can be rough on another.

The Apple II version is a case in point. Since Aladin comes on the same disks for the Apple II, II Plus, and IIe, I won't differentiate among these models, but—for the record—I used an Apple IIe. The confusion began when the tutorial required the ALADIN Plus diskette. None of the three furnished diskettes is labeled as such, but rather as System, Demo and Examples, and Installation. Of these, only the latter booted, and a temper-testing hit-and-miss game ensued, for the disk did not always produce the prompts the manual described. The manual has many references to an "Init" disk and its "convenient formatter," but I never found either. I won't bother you with all the details, but suffice it to say that the effectiveness of the tutorial is severely hampered by its many discrepancies.

Find the Signs

The manual boasts that every screen contains "Street Signs" that "identify just where you are in the system." I must have been driving in the dark, because much of the time, I saw no such signs. Nor did I find the statement "It talks to you in plain English" to be true. Consider the following line, which made an unscheduled appearance on my screen:

```
Vars: 1:OQ?, 2:IQ?,
3:DK?, 4:CAL?, 5:GL?,
7:NOT?, 8:SV?, 9:INFO?,
?>
```

If that is plain English, then popcorn grows on trees. "Help is always just one keystroke away," said the blurb on the box, so I selected the question-mark option, hoping for a help screen to appear. I was handed the following line instead:

```
RL Keys: Input, Output,
XOver, Tabulate, Vars,
What, Print, <escape>
```

That same line appeared when I entered 9 to select the Info option. This is "the easiest to use program ever devised"? I have been using computers daily since the early part of 1979, and I was ready to throw in the towel. Imag-

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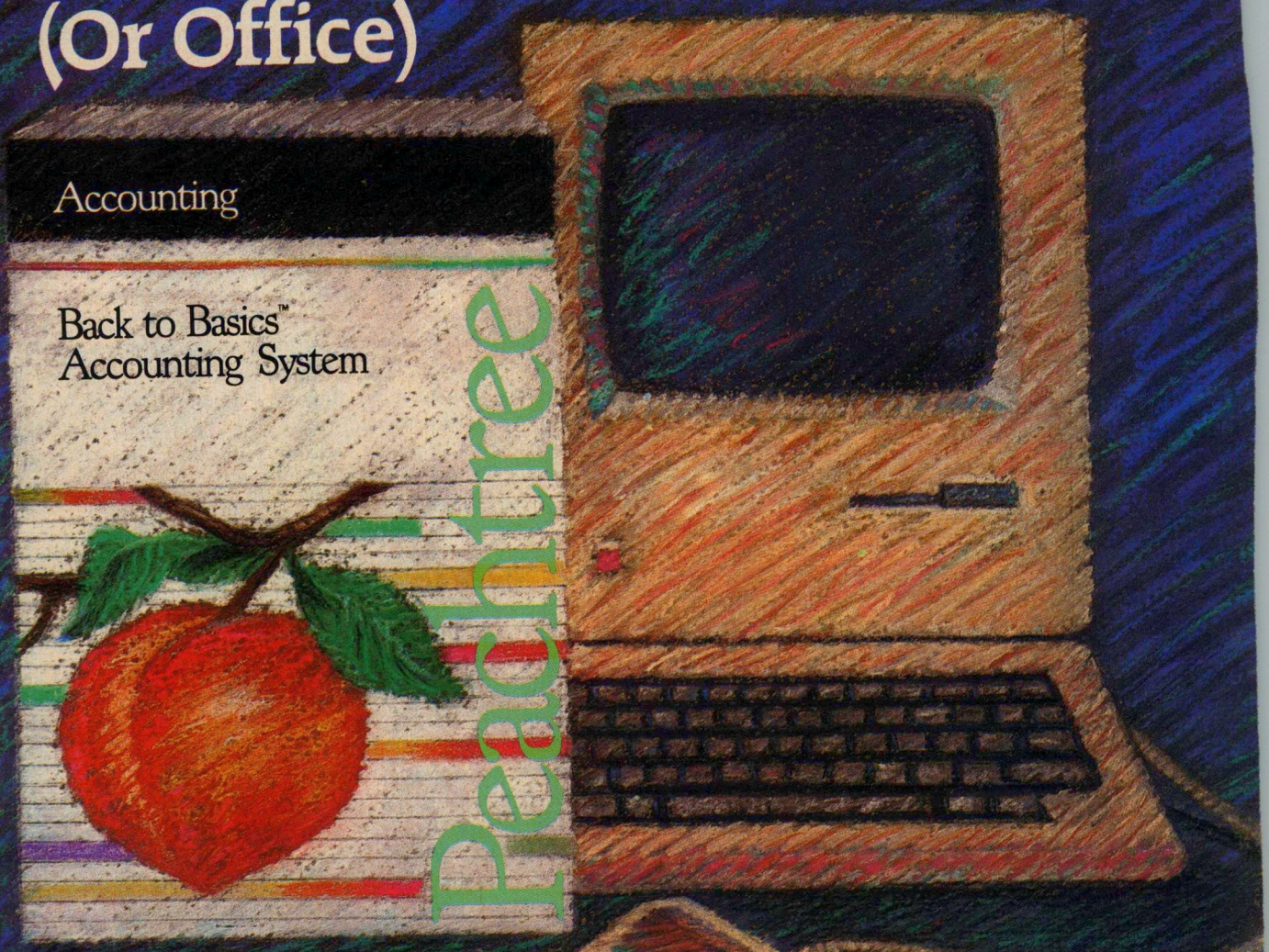

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CIRCLE 318 ON READER SERVICE CARD

WORD PROCESSING

▶ APPLEWORDS
BY STEVE ROSENTHAL

A short glossary of terms

ASCII TEXT FILE
A file containing only printable characters and a few standard format-control characters that govern things such as carriage returns. Almost all Apple II and Macintosh word-processing programs can accept and create ASCII text files, although most also can be set for a mode that saves more complex formatting information.

BLOCK MOVE AND DELETE
Features that let you mark a section of text on the screen to move to another part of the file or to a new file, or for removal from the document.

BOILERPLATE
Standard sections of text that are dropped into documents such as contracts and memos (and, lately, the process of dropping the sections in). Most programs let you duplicate only a single section at a time, but a few let you store up a whole library of standard sections.

CUT AND PASTE
To remove material from a document and replace it at another location or in another document. The operation is analogous to taking a paper copy of a document, cutting it apart, and pasting it back together in another order.

DISK-BASED
Said of word-processing programs that write sections of a file out to a disk and read them as needed, which lets them be used for editing files larger than what can fit in memory at one time.

DOCUMENT
For some word-processing programs, any file suitable for editing or the equivalent material before it is entered or in printed-out form. Other programs reserve the term for files that will be formatted in text form (using paragraphs), distinguishing document files from nondocuments such as programs or lists.

FOOTER
A title, heading, or identification printed in the bottom margin (or sometimes, more loosely, the margin itself).

FORMATTER
A program that takes a text file and adds the necessary printer or screen-control characters and spaces to cause the printed or displayed output to follow a certain specified pattern. Many word-processing programs have a built-in formatter that is invoked whenever a document is printed.

GLOBAL SEARCH AND REPLACE
A search-and-replace operation that includes all occurrences of the specified string of characters, not just the next one found.

HEADER
A title, heading, or identification printed in the top margin (or sometimes, more loosely, the margin itself).

INSERT MODE
A setting on most word-processing programs that causes text entered from the keyboard to be added to a file at the cursor position, pushing any existing text beyond it down or to the right as needed. Most programs let you choose between the Insert and Overstrike modes, but some offer only Insert.

JUSTIFIED
Text formatted so both the left and right margins are even. Typewriter style with the left side even is often called unjustified, but the more precise term is left-justified.

MERGE
To drop in names or other items from a list or database into a word-processing document. A merge feature lets a word-processing package produce not only "personalized" form letters (boo!), but also helpful reminders, schedules, and account statements.

OVERSTRIKE MODE OR STRIKEOVER MODE
A setting where text you type replaces existing material on a character-by-character basis. Some programs, such as AppleWorks, let you strike over only to the end of a line.

PRINTER DRIVER
Software that translates standard output into the exact form a particular printer model needs. Some Apple word-processing programs allow you to select from various built-in printer drivers; with others you must install the printer driver as a preboot, memory-resident program or desktop icon.

PRINTER OPTIONS
What AppleWorks calls your specifications for formatting documents.

SPELLER
An informal term for a spelling-checker program or feature. Because they check only whether words in a document are in a dictionary list, spelling checkers are better at catching clear typographical errors than the use of the wrong word or form.

STATUS LINE
On most Apple-II-series word-processing programs, a line giving information about the current state of your editing session. Typically, it includes the page, row, and column of the current cursor location; the name of the file you're editing; and, for programs that keep the entire file in memory, the amount of memory left. Tab and margin settings, if displayed, usually show up on a separate ruler or formatting line.

TEXT EDITOR
A program intended to help you create and alter text files. Most word-processing programs combine text-editor functions with a companion formatter program or section.

WILD CARD
A character or symbol that matches any character (or any character in a specified group) during a search, or search-and-replace, operation. Many Apple word-processing programs use the ? and = as wild cards.

WORD WRAP
A feature of many programs that automatically brings any word that won't entirely fit inside the right margin of the existing line down to a new line, usually as the word is being typed in.

WYSIWYG
An acronym for "what you see is what you get," an expression characterizing word-processing programs that show you on the screen what output you will get, complete with correct line breaks, pagination, and any special formatting. Many programs for the II series take this approach, as does MacWrite on the Mac. ✚

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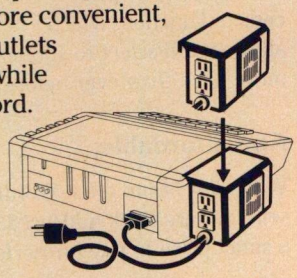

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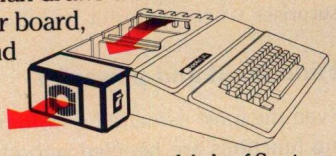

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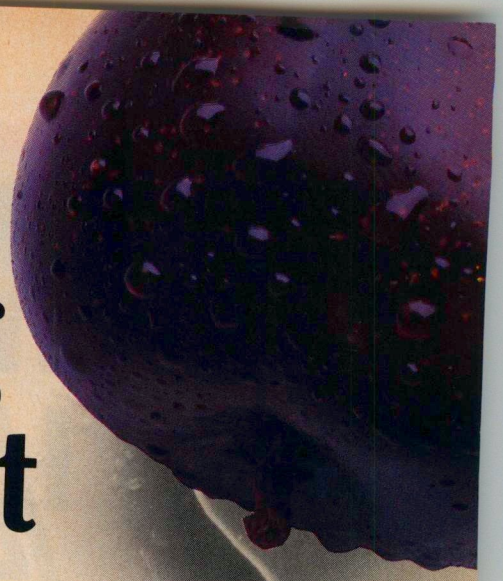

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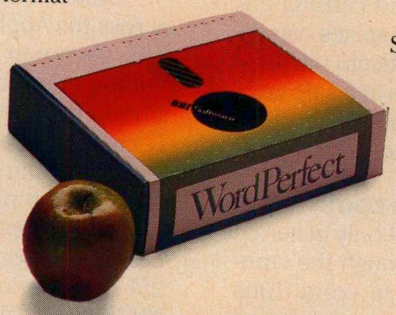

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displaying its work as it does it. This minor-sounding benefit causes the computer to execute your program up to five times faster than it would otherwise. If you are doing, say, a lot of find-and-replace operations, this time saving can be substantial. Once Apple Writer has finished running a WPL file, it automatically revives the display.

Another useful WPL command is PCS, which stands for *compare string*. When you set up a menu, you use this command to determine what action the program should take as a result of your choice. Say, for example, the menu asks whether you'd like to write a letter, a report, or a school paper. Each task might require a boilerplate, special print-format file, and glossary. The PCS command in a menu can automatically get you all these elements. WPL simply reduces many keystrokes down to a single one.

In this example—setting the default drive and loading the boilerplate, print file, and glossary—the single keystroke representing your menu choice might replace 20 keystrokes or more.

The PND command is not the only aspect of WPL that can speed up operation of a program. When you perform several operations that all require disk access (such as the example in the previous paragraph), listing them consecutively in a WPL program speeds them up considerably. Manually selecting a default drive and loading a document, glossary, and print file results in a game of ring-around-the-rosy with the computer: You enter a command, the computer gets the required data from the disk, you enter another command, the computer goes back to the disk, you enter a third command—you get the idea. With WPL, the four disk-access commands in this example are executed in what seems to be a single continuous pass of the disk (actually, the drive powers up for the next task before it has powered down from the last). In this instance, you drastically reduce the number of keystrokes and handsomely cut disk-driving time.

Numbers Game

Number-oriented people will also find uses for WPL, although, being a word person myself, I am hard-pressed to suggest any. The WPL manual, however, does have listings for a program called, logically enough, Number. By storing a list in a file, this program assigns consecutive numbers to each item and saves the numbered list under a new name (or not, as you wish). Another program in the manual, this one called Calc, performs an even more complex mathematical operation.

In my experience, Apple Writer is a perfectly adequate word processor. The ProDOS version, which adds telecommunications and a few other new features, is even better. WPL, however, makes Apple Writer a terrific program, one that can constantly change and grow with your needs.

Just today, working on this article, I was interrupted several times and had to wade through my powerful, but complex, start-up program each time I needed to get back to it. So, saving my old start-up program, I wrote a new one, only 110 characters long, that sets the default to my data disk and loads this file and its glossary. With all the time that I'm saving, I will be able to spend a lot more time watching movies on my VCR. ✚

Myron Berger, a former syndicated columnist, now writes about computers and other electronic technology for a variety of magazines.

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BASF

All you experienced Apple Writers who recognize roughly 80% of these commands will also find that the unfamiliar ones are nothing more than two familiar commands run together. So NY, for example, is the WPL version of Control-N(ew) followed by Y(es). Likewise, PNP is Control-P(rint) with the additional command NP (for *new print*). Generally, when you translate a command from Apple Writer to WPL, you omit the Control-key input. Saving or loading a file in WPL, for example, requires only S or L, followed immediately by the filename.

Until it executes them, Apple Writer treats WPL programs as text files. That is, you write, edit, and save a program as a text file. To enhance or improve it, you load, edit, and save the program again as if it were a conventional document. When you're ready to run the program, however, you use the Control-P command. In response to a prompt reading (P)rint/Program:, you simply type in do (the name of your program). If the preceding sample program were named, say, Fix, the execution command would be do Fix.

Easy Start-Up

Perhaps the most useful WPL program you can write is one you save on the master disk under the name Start-up. When you boot Apple Writer, it looks for a file of that name and, finding one, automatically executes it. Apple Writer has no prewritten start-up program, but the master disk has room for you to write your own. Regardless of how you use Apple Writer, a start-up program can almost certainly enhance your use of the word-processing program.

If, for example, your word processing is limited to letter writing, a start-up program might set the default drive as the one containing your data disk, load a boilerplate letter, load a glossary, load a print-value file, and position the cursor where you want to start the letter. On the other hand, if you use Apple Writer for a variety of tasks, a start-up program containing a menu can let you select a task for that session and then automatically carry out most or all of your setup requirements.

Time-Saving Command

Among the several commands that WPL offers that are not available in Apple Writer, perhaps the most useful is PND. This command, which stands for *no display*, temporarily blanks out your video-monitor screen. Its purpose, however, is to free the computer from

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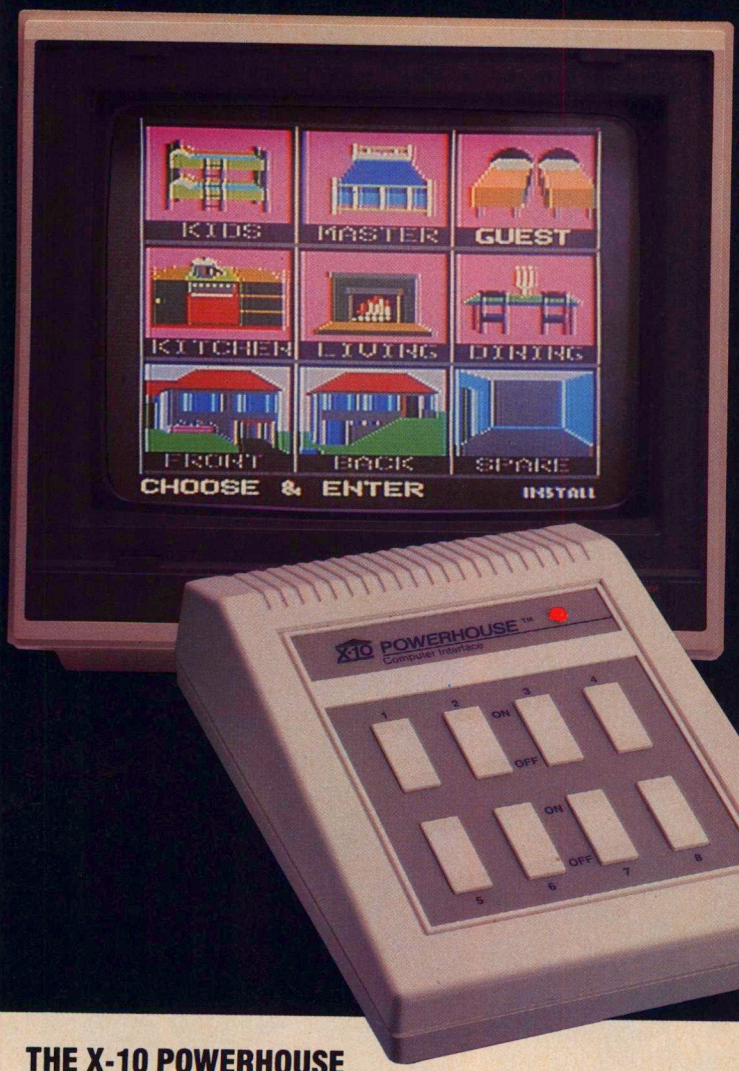

THE X-10 POWERHOUSE DOES EVERYTHING BUT PUT OUT THE CAT.

Model CP290

THE X-10 POWERHOUSE INTERFACES WITH YOUR APPLE TO CONTROL YOUR HOME...FOR SECURITY, COMFORT AND ENERGY SAVINGS.

This remarkable Interface lets you run your home through your Apple IIe or IIc and a mouse, keyboard or joystick.

When you're away, it makes your home look and sound lived in. When you're home, it can turn off the TV at night and wake you up to stereo and fresh brewed coffee in the morning. It can even turn on your air conditioner and control your heating.

SPECIAL COLOR GRAPHICS MAKE PROGRAMMING A SNAP. You simply pick a room from the display screen. Use your mouse, joystick or keyboard to position graphics of lights or appliances. Then follow on-screen instructions to program any light or appliance to go on or off whenever you choose. You can even control thermostats, light intensity and more.

THE WAY IT WORKS. The X-10 Powerhouse Interface is cable-connected to the Apple RS-232 port and plugged into a standard 110V outlet. After it is programmed, the Interface sends digitally encoded signals through your home wiring to special X-10 Modules. To control a lamp or appliance, you simply plug the electrical device into a Module and then plug the Module

into an outlet. The Interface can control up to 256 Modules throughout your home and won't interfere with normal use of lights and appliances.

There are plug-in Appliance Modules, Lamp Modules, Wall Switch Replacement Modules and Special 220V Modules for heavy duty appliances such as water heaters and room air conditioners. Plus Thermostat Controllers for central heating and air conditioning, Telephone Responders to control your home from any phone, and much more.

IT WON'T TIE UP YOUR COMPUTER. Use your computer only for programming. When you're finished, disconnect the Interface from the RS-232 port and keep it plugged into any convenient power outlet in your home. It will operate as a stand-alone controller with battery back-up and will run your home automatically.

SURPRISINGLY INEXPENSIVE. A Powerhouse System including the Interface, software and connecting cables costs less than $150. X-10 Modules are less than $20 each.

FOR THE X-10 POWERHOUSE DEALER NEAREST YOU, CALL TOLL-FREE: 1-800 526-0027

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X-10® POWERHOUSE

NUMBER ONE IN HOME CONTROL

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CIRCLE 347 ON READER SERVICE CARD

```
>   Z Mem:46507 Len:  338 Pos:    0 Tab:    0 File:/HARD1/LETTER
180N[p
.LM 10
.RJ
11 Davis Drive
Belmont, CA 94002
(415) 598 2290
August 16, 1985
.LJ

Mortimer Snerd
1111 Your Street
Anytown, CA
.94002

Dear Mortimer:

One of my favorite WPL programs is one I wrote to take
over a tedious letter writing task: transferring mailing
information from the letter to the envelope.

Sincerely,

Myron Berger
```

Figure 1: Sample format of a letter in Apple Writer. Note that the period before the ZIP code eliminates the ZIP code from the printed letter but makes it available for the envelope.

```
>   Z Mem:46785 Len:   60 Pos:    0 Tab:    0 File:/HARD1/ENVELOPE
A+ Magazine
11 Davis Drive
Belmont, CA  94002
.LM+70



X
```

Figure 2 (below): Sample of a boilerplate envelope file as it appears on the screen. The .LM+70 command is optional.

TIME-SAVING PROGRAM

One of my favorite WPL programs is one I wrote to take over a tedious letter-writing task: transferring mailing information from the letter to the envelope. The program is simple, and you can easily modify it for your own situation or, perhaps, make it even more powerful. As it is, it prints my letter, saves it, deletes the name and address of the person I am writing to, loads my boilerplated envelope, undeletes the name and address in the proper place on the envelope, and then waits for me to feed a blank envelope into the printer. I had to make it wait for my input before printing, because it otherwise ran so fast that I didn't have a chance to load the envelope before it was ready to go

The [L] in the third line of the listing (see "Program Listing" in box at right) means to press L while holding down the Control key.

In order for this program to work, it must execute while the letter is still in memory (see figure 1). The final find-and-replace command accommodates a peculiarity of my letter format: I precede the recipient's ZIP code with a period and enter it flush left on a separate line. I do this because I don't like printing the ZIP code as part of the letter but do want the information stored there for future use. My program deletes the period and indents the code nine spaces on the envelope.

You also need to save a boilerplate envelope under the name Envelope before you run the program (see figure 2). Be sure the envelope on your screen has an X at the spot where you want the name and address to appear on the actual envelope. You may want to use the .LM+70 command, as shown in figure 2, instead of actually typing the X where the address is to begin. After typing the command, you press Return six times and then type an X. The command makes the X move 70 spaces to the right, which is the spot where the address will begin.

PROGRAM LISTING

```
PRINT
  PND
  PPR [L]
  PPR    Printing letter
  PRM105
  PNP
  S=
  E
  F/Dear/
  ]
  X
  X
  X
  X
  X
  X
  X
  X
  NY
  LENVELOPE
  F/X//
  Y?
  D
  X
  X
  X
  X
  X
  X
  E
  F*,.+*,     *
  Y?
  PPR    Insert envelope.
  PPR
  PIN       Press Return to print.
  PNP
  PQT
```

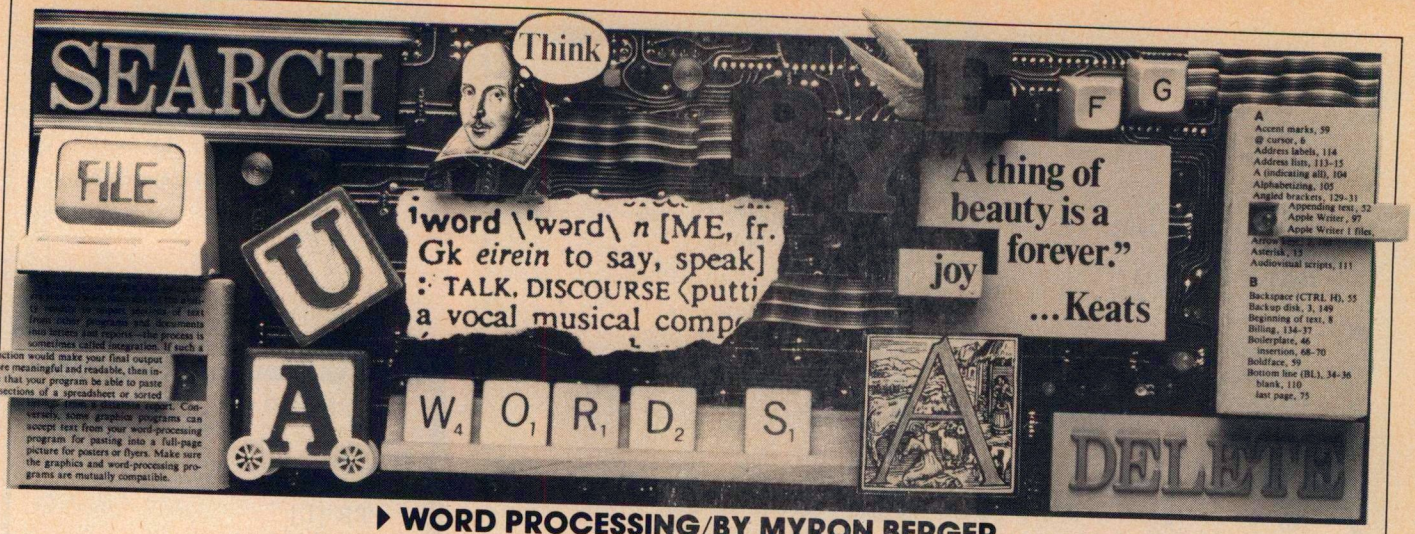
and ask for permission to replace and/or to continue searching. For every word or string you're replacing, you must repeat the Control-F command.

Next, Control-P(rint/program) followed by a question mark brings up the Print Format menu. To change the right margin, say, to 100 characters from the left margin, you type in rm100. Then the np command (from the Print menu screen, or Control-P and np from the text screen) sends the file in memory to the printer. Following the printing, Control-S(ave) and = saves the revised file under its previous name. (We're almost finished now.) In order to begin a new task, a Control-N(ew) brings an erase memory prompt; you respond with a y. Finally, you load the new file or task (call it Orange). Now you're finished.

Translation

To do the same thing in WPL, you place virtually the same command codes in the proper order in a list:

```
NY
OH/lettersod
Lapple
F/#/Mrs. Smith/a
E
F/men/women/a
PRM 100
PNP
S =
NY
Lorange
```



▶ WORD PROCESSING/BY MYRON BERGER

AUTOMATED WRITING

WITH APPLE WRITER'S WORD PROCESSING LANGUAGE

Cosmically speaking, application programs have always struck me as being more like salad forks than salad. That is, unless you are a skilled craftsperson (programmer), the salad fork (program) is immutable: What it is is what it is. On the other hand, a salad is what you make it. In the universe of word processors, then, Apple Writer is definitely a salad.

As owners of the program know, it comes with two spiral-bound books, one called *Apple Writer User's Manual*, the other mysteriously labeled *WPL Manual* or, in its latest version, *Apple Writer II Word Processing Language*. This second book is the one that holds the secret of Apple Writer's powerful versatility. It is also, however, a volume that seems to find its way quickly to the back of the bookshelf, the bottom of the drawer, and other dark places that forever escape our eyes.

Until I replaced my DOS 3.3 version of Apple Writer with the new and improved ProDOS model, I did not even know that WPL existed, much less what it was. Then, discovering that ProDOS required me to learn about such arcane things as pathnames, prefixes, and directories, I flailed about in a panic until I accidentally came upon WPL. To put it mildly, it made my day.

WPL stands for word-processing language, but this designation is not entirely accurate. WPL is, in fact, a programming language that functions within Apple Writer. Although you cannot use it to alter the basic capabilities of Apple Writer, WPL can fundamentally change its general operation. On the one hand, you can use it to impose a large, extensive structure over the program, making it *your* word-processing program, rather than just *a* word-processing program. On a more modest level, you can use several programs to perform many small tasks that would otherwise require lots of tedious typing.

More Good News

The second piece of good news about WPL is that if you have learned Apple Writer—learned all the control commands, that is—then you already know perhaps 80% of WPL.

The essence of WPL is that it is a system for stringing together a series of conventional Apple Writer word-processing commands to be sequentially and automatically executed at the user's order. In addition, WPL employs several commands that are unavailable in the Word-Processing mode of Apple Writer (more about that later). In a typical application of a WPL program, for example, you can set a new prefix volume (default drive), load a file, find a word or series of words and replace it or them with another word or words, adjust the print format, print the file, save a copy of the revised document to disk, load a new file, and get it ready to go. A single command can trigger all this activity.

How? Imagine that you were performing all seven of these tasks manually. Here are the instructions: First set the prefix by typing Control-O to access the ProDOS menu; selecting H to set the prefix volume; and, finally, typing in the volume name of the disk you'll be working with—say, /letters. Next type Control-L(oad) and the name of the file to load (we'll call it Apple). The next step—finding and replacing a string of characters or words—involves typing Control-F(ind) and keying in the string to find its replacement string. This command must be followed by an *a*, or the program will stop at every occurrence of the word

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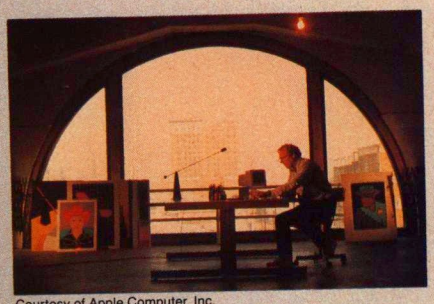

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CIRCLE 226 ON READER SERVICE CARD

CESSING PROGRAMS

	SYSTEM		HELP SCREENS	ON-LINE HELP	SPELLING CHECK	MAIL-LIST MERGING	CAN SAVE AS ASCII FILE	FOOTNOTES	INDEX/TABLE OF CONTENTS	BACKGROUND PRINTING	MULTIPLE-DOCUMENT EDITING	WINDOWS/SPLIT SCREENS	RAM LIMITS DOCUMENT SIZE	AUTOMATIC BACKUP	AUTOMATIC REFORMATTING	MENUS	FUNCTION KEYS	CONTROL SEQUENCES	UNDO FUNCTION	HARD-DISK CAPACITY	BACKUP COPY ALLOWED	
Personal Secretary Sof/Sys, Inc.	64K	II+ IIe IIc	■	■		■	■	■	8				■		■	■	■			■	■	4306 Upton Ave. South Minneapolis, MN 55410 (612) 929-7104
PFS:Write Software Publishing	64K	IIe[4] IIc	■	■									■		■	■	■				■	1901 Landings Drive Mountain View, CA 94043 (415) 962-0191
Pie Writer Hayden Software, Inc.	48K	ALL	■	■		■	■	■					■	■		■	■	■		■	■	650 Suffolk Street Lowell, MA 01854 (617) 937-0200
Power Text Beaman Porter, Inc.	48K[5]	II+ IIe IIc	■			■	■	7	■					■	■	■	■		■	■	■	417 Halstead Avenue Harrison, NY 10528 (914) 835-3010
ScreenWriter II Sierra On-Line	128K	IIe IIc	■	■		■	■	■	■	■	■			■	■	■	■	■	■	■	■	Box 485 Coarsegold, CA 93614 (209) 683-6858
SpeedScript Compute! Publ., Inc.	48K	ALL													■		■	■			■	Box 5406 Greensboro, NC 27403 (919) 275-9809
SuperText Professional Muse Software	48K	II+ IIe IIc	■	■			■		■			■	■		■			■				347 North Charles Street Baltimore, MD 21201 (301) 659-7212
SuperWriter[1] Computer Associate Microproduct Division	64K	II II+ IIe		■	■	■	■			■			■	■	■	■	■	■		■	■	2195 Fortune Drive San Jose, CA 95131 (408) 942-1727
THE Word Processor[1] Palantir Software	128K	IIe		■	10	■	■	■	10	■	■			■	■	■	■	■		■		12777 Jones Rd., #100 Houston, TX 77070 (713) 955-8880
The Gutenberg WP Micromation, Ltd.	64K[9]	ALL				■	■	■	■		■	■		■			■	■			■	1 Yorkdale Rd., Ste. 406 Toronto, Ontario M6A 3A1 Canada (416) 781-6675
The Writer Hayden Software, Inc.	48K	ALL	■	■	10	■	■						■	■		■	■	■		■	■	650 Suffolk Street Lowell, MA 01854 (617) 937-0200
Word Handler II Advanced Logic Systems	48K	ALL	■				■								■	■						1195 Arques Avenue Sunnyvale, CA 94086 (408) 730-0307
Word Juggler Quark, Inc.	128K	ALL	■	■	■	■							■			■	■	■		■		2525 W. Evans, Ste. 220 Denver, CO 80219 (303) 934-2211
Word Juggler IIe Quark, Inc.	64K	IIe IIc	■	■	■	■	■						■			■	■	■		■		2525 W. Evans, Ste. 220 Denver, CO 80219 (303) 934-2211
Word Perfect Satellite Software	128K	IIe[5] IIc	■	■		■	■		■					■		■	■	■	■	■		288 West Center Street Orem, UT 84057 (801) 224-4000
WordStar 3.3[1] MicroPro International	64K	II II+ IIe	■	■	10	10			10	■				■		■	■	■		■	■	33 San Pablo Avenue San Rafael, CA 94903 (415) 499-1200
Write Away Peregrine	64K	ALL	■	■		■	■	■							■		■	■	■	■	■	1160 Appleseed Lane St. Louis, MO 63132 (314) 997-2369
Write Choice Roger Wagner Publ., Inc.	48K	ALL	■	■			■	■	■		■	■	■		■	■		■		■	■	17601 Woodside, Ste. E Santee, CA 92071 (619) 562-3670
Zardax Action-Research Northwest	48K	II+ IIe IIc	■			■	■						■			■		■		■	■	11442 Marine View SW Seattle, WA 98146 (206) 241-1645

Key: **1)** with CP/M card **2)** DOS 3.3—64K, ProDOS—128K **3)** IIe enhanced **4)** also requires 80-column text card **5)** II+—64K, IIc—128K, IIe—64K or 128K **6)** 128K has help screens **7)** 128K—yes **8)** index—yes **9)** 128K with IIc, IIe **10)** available separately
This chart contains a sampling of products, and the information herein is based on manufacturers' claims.

APPLE II WORD-PRO

	SYSTEM	HELP SCREENS	ON-LINE HELP	SPELLING CHECK	MAIL-LIST MERGING	CAN SAVE AS ASCII FILE	FOOTNOTES	INDEX/TABLE OF CONTENTS	BACKGROUND PRINTING	MULTIPLE-DOCUMENT EDITING	WINDOWS/SPLIT SCREENS	RAM LIMITS DOCUMENT SIZE	AUTOMATIC BACKUP	AUTOMATIC REFORMATTING	MENUS	FUNCTION KEYS	CONTROL SEQUENCES	UNDO FUNCTION	HARD-DISK CAPACITY	BACKUP COPY ALLOWED	
AppleWorks Apple Computer, Inc.	64K IIe	■	■							■	■	■		■	■		■		■	■	20525 Mariani Avenue Cupertino, CA 95014 (408) 996-1010
Apple Writer II Apple Computer, Inc.	64K IIe IIc	■	■		■							■		■	■		■		■		20525 Mariani Avenue Cupertino, CA 95014 (408) 996-1010
Bank Street Writer Brøderbund Software	64K[5] II+,IIe 128K[6] IIe,IIc	■	■			■		■			■	■	■		■	■					17 Paul Drive San Rafael, CA 94903 (415) 479-1170
Benchmark[1] Metasoft Corporation	64K IIe		■	■	■		■							■	■	■	■		■	■	6509 W. Frye, Ste. 12 Chandler, AZ 85224 (602) 961-0003
CircaScript Circadean Software	48K II II+ IIe				■							■		■	■	■	■			■	Box 1208 Melbourne, FL 32901 (305) 676-5822
Cut & Paste Electronic Arts	64K IIe IIc											■		■	■	■					2755 Campus Drive San Mateo, CA 94403 (415) 571-7171
Executive Footnoter Sof/Sys, Inc.	64K IIe IIe IIc	■	■			■	■	■				■		■	■	■			■	■	4306 Upton Ave. S. Minneapolis, MN 55410 (612) 929-7104
Executive Secretary Sof/Sys, Inc.	64K II+ IIe IIc	■	■	10	■	■		8				■		■	■	■			■	■	4306 Upton Ave. S. Minneapolis, MN 55410 (612) 929-7104
FinalWord[1] Mark of the Unicorn	128K IIe	■	■			■	■	■	■	■	■		■	■	■	■	■		■	■	222 Third Street Cambridge, MA 02142 (617) 576-2760
Format II[2] Kensington Microware	64K II+ IIe IIc				■	■						■		■	■				■	■	251 Park Avenue South New York, NY 10010 (212) 475-5200
Home/Office Muse Software	48K II+				10	■					■	■					■				347 North Charles Street Baltimore, MD 21201 (301) 659-7212
Homeword Sierra On-Line	64K II+ IIe IIc	■	■			■				■	■		■	■	■	■	■	■		■	Box 485 Coarsegold, CA 93614 (209) 683-6858
Letter Perfect LJK Enterprises, Inc.	48K ALL	■		■	■	■				■		■		■	■		■		■	■	7852 Big Bend Blvd. St. Louis, MO 63119 (314) 962-1855
Magic Window II Artsci, Inc.	48K ALL	■		10	10	■						■		■	■	■	■	■	■		5547 Satsuma Avenue N. Hollywood, CA 91601 (818) 985-2922
MegaWriter Megahaus	128K II II+ IIe	■		10	■	■							■	■	■	■					5703 Oberlin Drive San Diego, CA 92121 (619) 450-1230
Milliken Word Processor Milliken Publ. Co.	48K ALL	■	■			■									■	■					Box 21579 St. Louis, MO 63132 (314) 991-4220
MouseWrite Roger Wagner Publ., Inc.	128K IIe[3] IIc	■	■			■	■	■			■	■		■	■		■		■	■	10761 Woodside, Ste. E Santee, CA 92071 (619) 562-3670
Multi-Lingual Word Processor Gessler Educ. Software	64K II+ IIe IIc	■	■			■					■	■			■	■	■	■	■	■	900 Broadway New York, NY 10003 (212) 673-3113
New Word[1] New Star	48K II II+	■	■		■	■							■	■	■	■	■	■	■	■	1601 Oak Park Blvd. Pleasant Hill, CA 94523 (415) 932-2278
Perfect Writer Thorn/EMI Computer	128K IIe	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■		■	■	1881 Langley Avenue Irvine, CA 92714 (714) 261-6600

BY FREDERIC E. DAVIS

WORD PROCESSING CHECKLIST

Every word-processing program has a different set of features. Below is a checklist of the major features the word-processing programs currently on the market offer. Some of the features are probably going to be more important to you than others, so you may want to make a list of the features you need for your particular applications before you go shopping for a word-processing program. Although no program has all these features, this checklist should give you a good idea of what types of features are available.

GENERAL FEATURES

Several general features are desirable in almost any software:

- ☐ Easy use and learning
- ☐ Good documentation
- ☐ On-line help facility
- ☐ Tutorial(s): a) written b) computer-based c) both d) audio e) video
- ☐ Low price/good value
- ☐ Adequate support from the manufacturer, your dealer, and/or other users
- ☐ Use of a standard operating system and text-file structure to enable it to work well with other software such as telecommunications programs
- ☐ Ability to be reliably copied for backup purposes

CURSOR MOVEMENT

The cursor is the focal point of many word-processing activities and should be simple to manipulate. Features to look for are

- ☐ Ability to move the cursor easily and rapidly within a file
- ☐ Support for additional devices for cursor control (mice, touchpads, and the like)

EDITING COMMANDS

Editing features are the core of the program. You should be able easily to

- ☐ Insert, delete, and move characters, words, phrases, lines, paragraphs, and pages within the document
- ☐ Copy characters, words, phrases, lines, paragraphs, and pages from one place in the document to another, or from one document to another
- ☐ Search for and replace a character, word, or phrase—either selectively or globally throughout the entire document
- ☐ Merge in information from another document (cut and paste)
- ☐ Define keyboard macros to automate often-used commands

FORMATTING COMMANDS

After you edit a document you usually want to format it for printing; features to look for are

- ☐ The ability to reformat the document easily and flexibly
- ☐ Full margin and tab control
- ☐ The ability to left-, center-, and right-justify paragraphs
- ☐ The ability to create page headers and page footers
- ☐ Automatic page numbering (good programs can place the page number anywhere on a page and integrate it into either the header or the footer)
- ☐ The possibility of determining forced or conditional page breaks
- ☐ Storage of "canned" formats, templates, and forms
- ☐ Ability to print two (or more) columns of text on a page
- ☐ Footnote capabilities
- ☐ WYSIWYG (what you see is what you get)—i.e., on-screen display of underlines, boldface, italics, subscripts, superscripts, special symbols, multiple fonts, and/or proportional spacing
- ☐ Optional line or paragraph numbering

PRINTING FEATURES

Once you've formatted a document, you'll want to print it. These features help you control the printing process:

- ☐ Ability to install/modify/customize/redefine the kind and brand of printer (dot-matrix, daisy-wheel, ink-jet, laser)
- ☐ A printer that can produce underlines, boldface, italics, subscripts, superscripts, special symbols, multiple fonts, and/or proportional spacing
- ☐ Print spooling (allows you to edit a document while another is printing)
- ☐ Ability to assign print jobs (print multiple copies or documents)
- ☐ Ability to link multiple files while printing to produce a cohesively formatted document

SYSTEM HOUSEKEEPING

Your word-processing program should make operating-system functions accessible from within the program. It will help you if it

- ☐ Gives you freedom of filenames (a filename such as Lettr.adm isn't as intelligible as the name Admissions Letter
- ☐ Report the amount of space left on the disk for file storage
- ☐ Displays file (document) length in characters, words, lines, paragraphs, and/or pages

ADJUNCT FEATURES

Although these features are not usually part of word-processing software, they are often available as add-on software:

- ☐ Mailing-list/form-letter capabilities (built-in or extra)
- ☐ Spelling checker/thesaurus (one you can customize with your own words is preferable)
- ☐ Grammar/usage checker
- ☐ Fog-index checker (counts number of multisyllabic words per sentence, etc.)

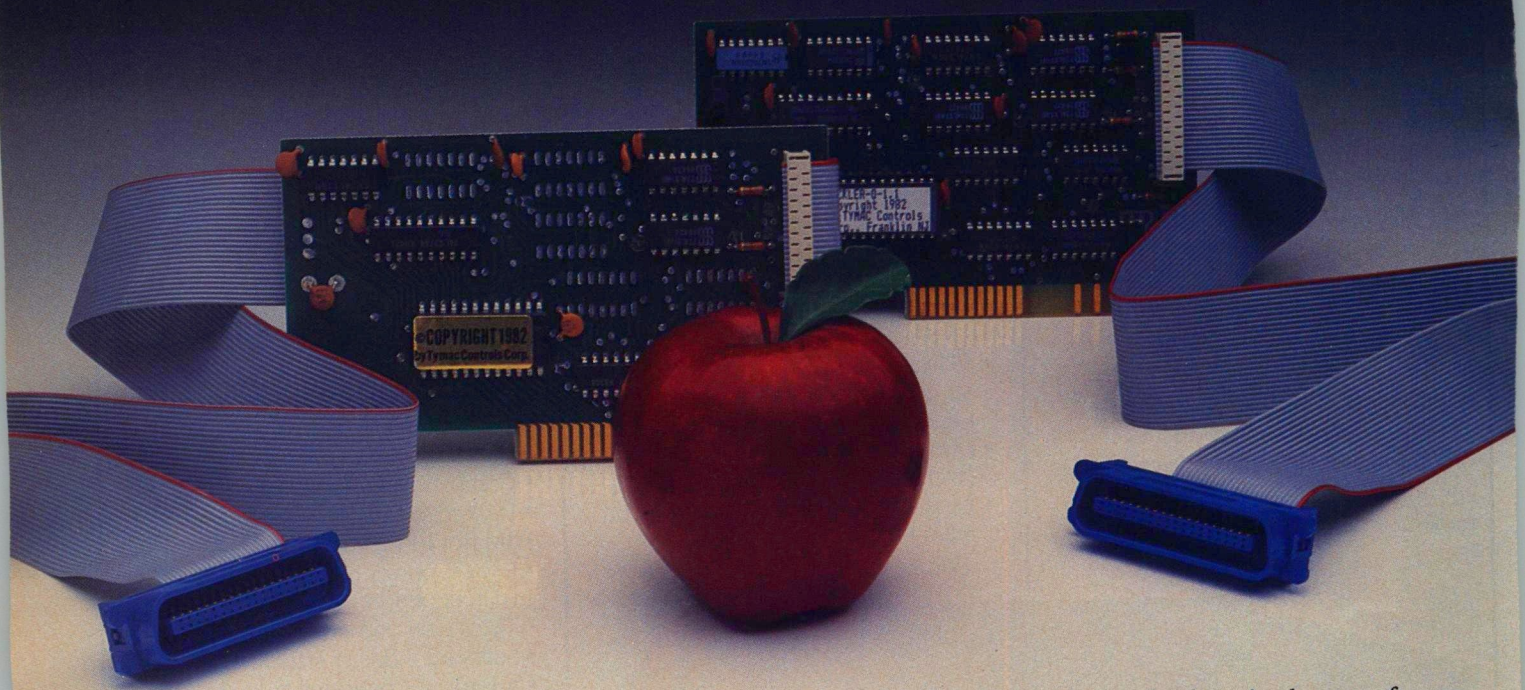
ADVANCED FEATURES

Not everyone needs these features, but they're good to have if you do need them:

- ☐ Ability to filter out user-defined characters (especially handy for telecommunicating documents)
- ☐ Compatibility with typesetting equipment
- ☐ Ability to work with nonstandard keyboards such as Dvorak
- ☐ Support of foreign character sets
- ☐ Table-of-contents generation
- ☐ Automated indexing
- ☐ Procedural language (for customization and flexibility)
- ☐ Ability to link information in a document with other files for automatic updating if any of the linked files are modified
- ☐ Split screens, multiple screens, or windowing
- ☐ Full-page display (66 lines for an 8½ × 11-inch page)

TYMAC PRINTER INTERFACES HAVE MORE IN THEM...

...Users Get More Out of Them



TYMAC's "PPC-100"™ and "The Tackler"™ Parallel Printer Interfaces are designed exclusively for use with Apple® II, II+, and IIe Computers. Every product is individually bench-tested to guarantee 100% performance and quality-driven results. Each printer interface comes with a full, one-year warranty. Since 1980, TYMAC has been providing state-of-the-art printer interfaces with more in them . . . you get more out of them. Contact your local computer retailer, or call or write TYMAC directly for further information and literature about TYMAC's superior computer products.

"PPC-100"
A Parallel Printer Interface for Apple II Computers

TYMAC's "PPC-100" enhances your computing options by giving you the ability to print clear, easy-to-read text. Now, you can invest in a printer interface that will allow you to take full advantage of your computer's capabilities.

The "PPC-100" has a suggested retail price of $49.95. The "PPC-100" will connect to any printer with a standard Centronics parallel interface, including Star, Riteman, Smith-Corona, Epson, Panasonic, BMC-80, Mannesman Tally, Olympia, Okidata, Canon/C. Itoh, NEC, Seikosha, Gorilla Banana, and Universal.

"The Tackler"
An Intelligent, Dual-Mode, Graphics Parallel Printer Interface for Apple II Computers

This intelligent, dual-mode, graphics parallel printer interface will print both text and graphics to meet a variety of computing requirements. TYMAC's "The Tackler" gives you two boards in one for maximum benefit with minimum investment. With just the flip of a switch, "The Tackler" may be converted from a fully intelligent parallel interface into a standard parallel board. Easy keyboard commands allow you to dictate margins, line widths, page lengths, and more for "custom-designed" documents with superior quality. "The Tackler" provides HIRES graphics output to meet the needs of any Apple user—for personal, educational, or professional use. It also features options to inverse, enlarge (to two times), or rotate graphics with just a single-key command.

"The Tackler" is compatible with any Centronics parallel interface printer, including Star, Riteman, Smith-Corona, Epson, Panasonic, BMC-80, Mannesman Tally, Olympia/Okidata, Canon/C. Itoh, NEC/Seikosha and Gorilla Banana. For a suggested retail price of $59.95, "The Tackler" will give you the most out of your printing capabilities.

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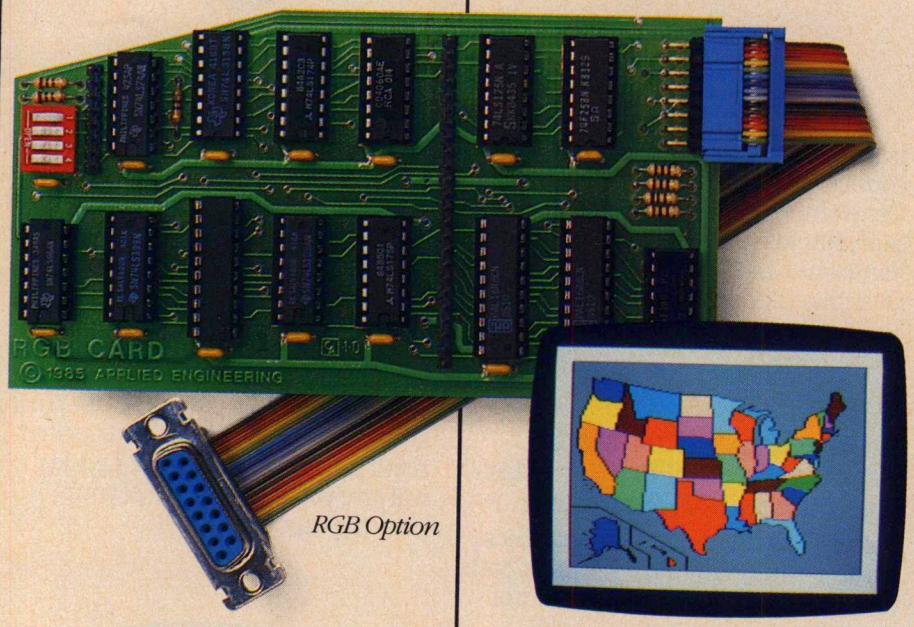
CIRCLE 301 ON READER SERVICE CARD

of RamWorks II memory. And speaking of more memory, RamWorks II has a memory expansion connector on board so a low profile (no slot 1 interference) memory expansion card can add another 512K or 2 MEG of memory.

Should you ever run low on memory with RamWorks II (unlikely) you can add these expander cards to your RamWorks II at any time. And of course, these expander cards are compatible with original RamWorks too.

It's In Color.

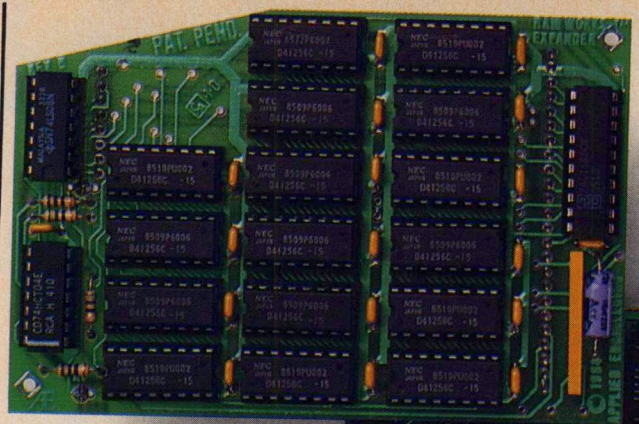
The same slot that's used for memory expansion is also the slot that's used for RGB color display. RamWorks II lets you decide later to add RGB color. For only $129, an RGB option can be added to RamWorks II to give you double high resolution color graphics and 80 column text. All with razor sharp, vivid brilliance that's unsurpassed in the industry. The RGB option does not waste another valuable slot, but rather plugs into the back of RamWorks II with no slot 1 interference (works on the original RamWorks, too) and attaches to any Apple compatible monitor. And remember. You can order the RGB option with your RamWorks II. Or add it on at a later date.



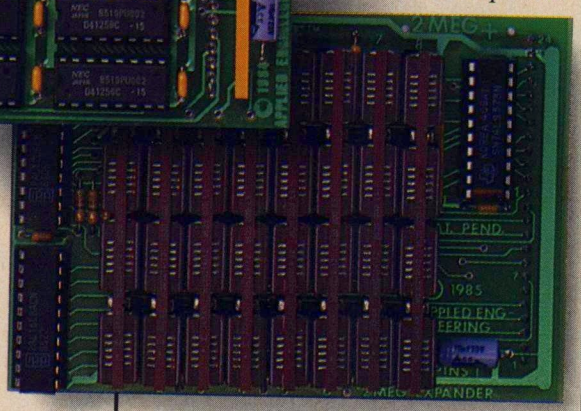
RGB Option

It Corrects Mistakes.

Let's say you bought some other RAM card (and that's a mistake) and your RAM card is not being recognized by AppleWorks, Advanced Visicalc, Flashcalc, Supercalc 3A, or other programs, and you want RamWorks II.



512K Expander



2 MEG Expander

No problem. The memory chips on the card that you now have, which is where most of the money is, can be unplugged and then plugged into the expansion sockets on RamWorks II.

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- 15 Day Money Back Guarantee
- Super sharp 80 column text (patent pending) with or without RGB option
- Double high resolution graphics (with or without RGB option)
- Expandable up to 1 Meg (1024K) on main board
- Expandable to 3 Meg (3072K) with expander (piggyback) card
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- Automatic AppleWorks expansion up to 2205K desktop
- Accelerates AppleWorks
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- The only large RAM card that's 100% compatible with all IIe software
- RAMDRIVE™ software available, compatible with Applesoft, PRO-DOS, DOS 3.3, PASCAL and CP/M ($29.00)
- Compatible RGB option
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RamWorks II with 128K	**$ 219**
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RamWorks II with 512K	**$ 319**
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RamWorks II with 3 MEG	**$1699**
RGB Option (can be added later)	**$ 129**

RamWorks II. Like the original, it's rather extraordinary. But then some things never change.

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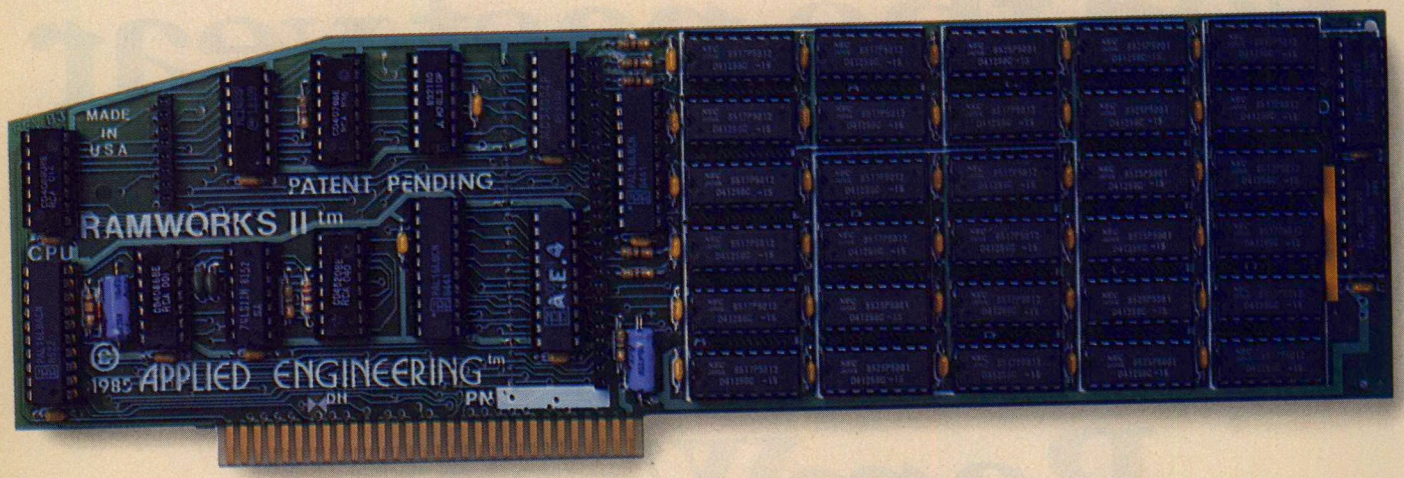

RamWorks II. A Generation Ahead. Again.

The best selling expansion card for the Apple IIe just got even better. With RamWorks II, expand your IIe to an incredible 3 megabytes of usable RAM.

Turbo Charged AppleWorks.

RamWorks II plugs into the IIe auxiliary slot and acts just like Apple's extended 80 column card, only better—because if you buy a 256K or larger card, AppleWorks will automatically load itself into RamWorks II. This dramatically increases AppleWorks' speed and power because it effectively eliminates the time required to access disk drive 1. Now, switch from word processing to spreadsheet to database management at the speed of light. AppleWorks responds the moment your fingers touch the keyboard.

But AppleWorks has certain internal limits, independent of available memory. Fear not. Only RamWorks II (and the original RamWorks of course) removes those limits. Only RamWorks II increases the maximum number of records available from 1,350 to over 16,000. Only RamWorks II actually increases the number of lines permitted in the word processing mode. And only RamWorks II features a built-in printer buffer, so you no longer have to wait for your printer to stop before going back to AppleWorks (256K or larger RamWorks II required).

With RamWorks II, you won't have to split your data into 2 or more separate files because you'll have the necessary memory to access ALL your data ALL the time, quickly and conveniently.

RamWorks II	AppleWorks Desktop
128K	101K
256K	183K
512K	367K
1 MEG	736K
1.5 MEG	1104K
3 MEG	2205K

The Most Friendly, Most Expandable Card Available.

RamWorks II is compatible with more off-the-shelf software than any other RAM card. Popular programs like Advanced VisiCalc, Magic Office System, Flashcalc, The Spread Sheet, Diversi-DOS, Supercalc 3A, Magicalc, etc. (and hardware add-ons like Profile and Sider hard disks). Fact is, only RamWorks is 100% compatible with all software written for the Apple 80 column and extended 80 column cards. In addition, RamWorks II can emulate most other RAM cards, so you can use programs written for them without modification. And any size RamWorks II can be user upgraded later to any larger size.

RamWorks II was designed so you could take full advantage of future developments in 16 and 32 bit microprocessors. As your needs grow, so can RamWorks II. A handy coprocessor connector allows the latest and greatest coprocessor cards to access all 3 MEG

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[SEE PAGES 58 AND 59]

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of light that can be focused precisely and manipulated electronically. The laser beam lays a pattern of charges on the drum, which then picks up electrosensitive toner in the same magnetic pattern and lays it on a temporarily charged piece of paper as it flows through the machine from a paper tray. A fusing roller uses heat in the last step to burn the toner onto the paper. Unlike the common printer-ribbon ink, which bleeds into porous paper, the toner produces a slightly raised surface on the laser-printed page that will not smudge from handling.

The printers can automatically sheet-feed any xerographic or bond paper of up to 20 pounds (card stock is too heavy) through paper trays (available for several paper sizes), or you can hand-feed special papers such as transparencies and envelopes. Unfortunately, the trays hold only 100 pages or so at a time, so you have to refill them often for high-volume use.

Just as in the desktop Canon copiers, the toner comes in a replaceable cartridge that costs about $100 and can print roughly 3000 copies (more or less, depending on the amount of text and graphics per page). The cartridges make users' interactions with the toner relatively clean, but the relatively high per-page cost of cartidge toners, along with the high initial cost of the printers themselves, make laser-printed pages rather expensive: 3½ cents a page for the toner alone!

What makes laser printers different from Canon's copiers is that the final vendor builds in additional memory and processing chips. HP adds 4K of memory to the LaserJet that can be addressed through HP's Printer Control Language (PCL), allowing upward compatibility for programs that use PCL to address HP's other printers.

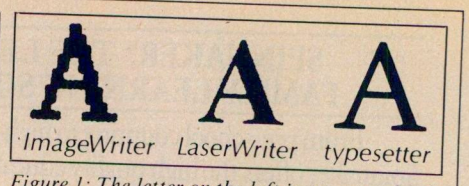

Figure 1: The letter on the left is an example of ImageWriter print, the one in the center is from a LaserWriter, and the one of the right is typeset.

The LaserJet PLUS comes with 512K of built-in memory (117K ROM and 395K RAM), allowing room for access to as many as 32 downloadable fonts at a time, plus one set of cartridge fonts. New PCL Escape codes let you select solid-line rules, shading, and fill patterns for graphics. You can load macros (previously loaded sets of commands) into the LaserJet PLUS to store up to 32 different business forms. Any program that works with the LaserJet is upwardly compatible with the LaserJet PLUS.

Apple adds a 12-megahertz Motorola 68000 microprocessor with 2 megabytes of memory for processing to the basic Canon engine, making the LaserWriter the biggest computer Apple makes. All processing is done through a language called PostScript by Adobe Systems, built in to .5 megabytes of ROM, leaving 1.5 megabytes of RAM for processing text and graphics.

Variety of Fonts

Laser printers can print any font (any typeface in any size and typestyle), subject to two restrictions: The font definition must be stored in the printer itself, and the text program must know how to identify different fonts.

HP's LaserJet comes with Courier built in, and other available typefaces include Letter Gothic and Prestige Elite (both typewriter fonts), typeset-quality Times and Helvetica, line printer (a compressed print), Legal

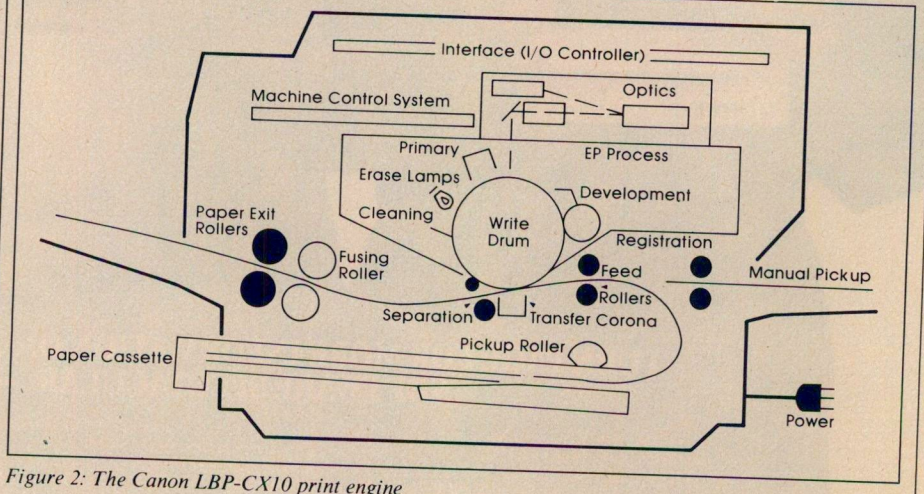

Figure 2: The Canon LBP-CX10 print engine

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With the LaserJet, you are limited to a maximum of eight different fonts on a page—eight different typeface/typestyle/size definitions are the most that one cartridge can hold. Typestyle variations include plain, bold, italic, and orientation (portrait or landscape). One cartridge, for example, includes 12-point Plain Courier (portrait and landscape), 12-point Courier Bold and Italic (portrait only), and 8.5-point Line Printer (landscape only). Another cartridge incorporates portrait and landscape versions of 12-point Plain Courier and portrait-only versions of 8.5-point Line Printer, 14.4-point Bold Helvetica, 10-point Plain, Bold and Italic Times, and 8-point Plain Times.

LaserJet PLUS fonts also come as separate cartridges, but this printer allows up to 32 different fonts to be downloaded into memory, in addition to one set of cartridge fonts, in sizes from 6 to 30 points. This feature is especially useful in a multiuser environment with a demand for a wide range of fonts, even though you are limited to a maximum of 16 different fonts per page.

With the LaserJet, you are limited to a maximum of eight different fonts on a page.

Apple's LaserWriter comes with Courier, Times, Helvetica and Greek Symbols built in, with sizes from 3 points to over 72 points accessible through different text programs on the Macintosh and more limited sizes available through Microsoft Word or WordStar on an IBM PC or compatible computer. Adobe Systems is releasing more typefaces for the LaserWriter this fall, including ITC Bookman, Souvenir, Palatino, New Century Schoolbook, and Zapf Chancery.

Printing Graphics

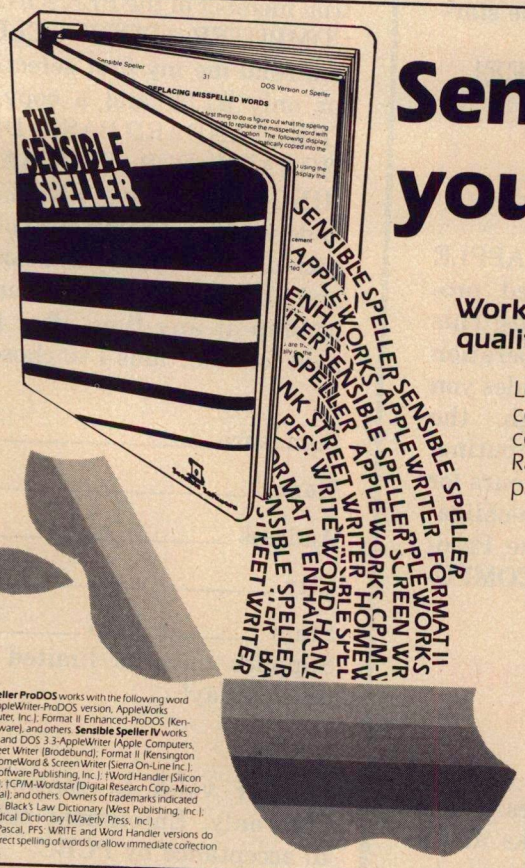
Laser technology allows the printing of text and graphics together on the same page, but few software programs currently let you build both text and graphics into a single file. In this respect, only the Macintosh takes full advantage of all three printers' graphics capabilities.

The HP LaserJet can print graphics at 75, 100, 150, or 300 dpi. Unless the source program addresses the LaserJet's Printer Control Language directly, the default density is 75 dpi. The LaserJet PLUS includes some graphic enhancements over the LaserJet, including the capability to download and store custom graphics, draw rules on a page, and fill areas with different shading patterns—handy features for designing your own business forms.

The LaserJet's 395K of RAM lets you print full pages of high-resolution (150-dpi) graphics or half a page of graphics at 300 dpi. You can also store up to 32 different business forms at once with overlay capabilities, meaning that you can use the LaserJet PLUS as an invoicing system at a service counter or in the accounting department to print an invoice form (filled in with the particulars of the purchase) and a letter on your graphic letterhead—one right after the other!

Page-Composition Systems

Currently, Microsoft Word is the only page-composition package that ad-



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*Sensible Speller ProDOS works with the following word processors, AppleWriter-ProDOS version, AppleWorks (Apple Computer, Inc.); Format II Enhanced-ProDOS (Kensington Microware), and others. Sensible Speller IV works with DOS 3.2 and DOS 3.3-AppleWriter (Apple Computers, Inc.); Bank Street Writer (Brodebund); Format II (Kensington Microware); HomeWord & Screen Writer (Sierra On-Line Inc.); †PFS: WRITE (Software Publishing, Inc.); †Word Handler (Silicon Valley Systems); †CP/M-Wordstar (Digital Research Corp.-Micropro International), and others. Owners of trademarks indicated in parentheses. Black's Law Dictionary (West Publishing, Inc.); Stedman's Medical Dictionary (Waverly Press, Inc.).
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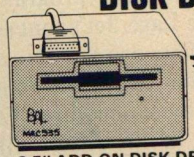

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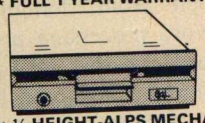

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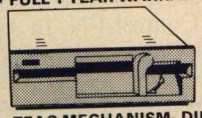

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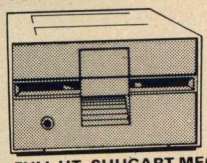

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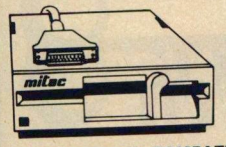

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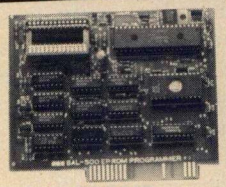

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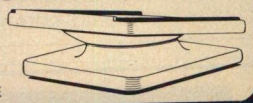

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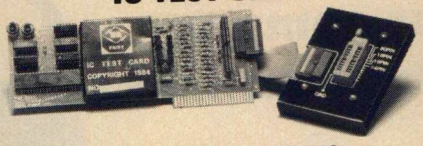

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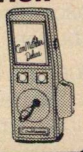

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CIRCLE 167 ON READER SERVICE CARD

dresses the LaserJet; here we stretch the definition of *page composition* to include Word's ability to print text in columns. More serious, full-featured page-composition systems that address the powerful built-in PostScript language are available for the LaserWriter. These systems, such as PageMaker by Aldus Corporation and ReadySetGo from Manhattan Graphics, let you set up margins and columns and insert graphics from MacPaint or MacDraw into text from word-processing programs. We know of no comparable programs for the Apple II series, but similar systems are coming out for the IBM PC and compatibles.

Network Capabilities

Apple's LaserWriter comes with AppleTalk network software built in to memory; all you need to link a maximum of 30 terminals to one printer is the right number of AppleTalk cables. HP's LaserJet printers can also be hooked up to a network of computers through a networking package such as Omninet by Corvus.

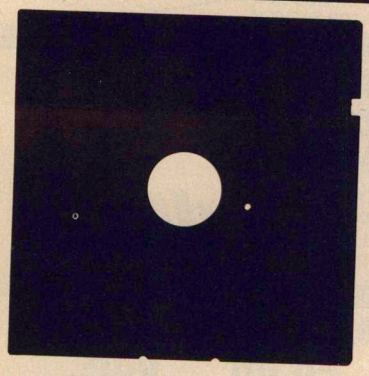
Hardware Compatibility and Fonts

You can connect the LaserJet to IBM PCs; Apple-II-series computers; Macintoshes; and, of course, Hewlett-Packard personal computers. The LaserJet can also hook up directly to some mainframes and minicomputers (with additional software).

All you need to link a maximum of 30 terminals to one printer is the right number of AppleTalk cables.

With the LaserJet hooked up to a Macintosh through a serial cable from either the modem or printer port, you can print out almost any file—text and/or graphics—once you run an installation program such as LaserStart by Softstyle. As you might expect, font selection on the Macintosh is a simple menu operation. You need to purchase additional font cartridges, however, if you wish to print in something other than the built-in Courier font. It is also the font you get whenever you request draft-quality printouts, but in the Draft mode the entire text is printed in plain style—bold and italics do not show. Even without the addition of cartridges, you can print text in other Macintosh fonts as bit-mapped fonts; i.e., they print with the same low resolution as graphics: 75 dpi, as opposed to 300 dpi for stored fonts. The result is that the printed pages look a lot like dot-matrix printouts, with lots of low-resolution "jaggies."

You can hook up the LaserJet to an Apple IIe rather simply with a serial card and an RS-232 cable, but, as of this writing, no single installation program lets you print out all your current files on the LaserJet. Any document can print out in standard Courier, the built-in font, but few text programs currently address the LaserJet's font selection through easy commands or menu selections. You can send font-change commands by embedding Escape-code sequences in any ASCII file to change typefaces or typestyles, but the codes are obscure enough to discourage most people from changing fonts very often. Word-processing programs, such as WordStar, that let you define your own function keys can be tailored to run the LaserJet's font options with two-stroke commands such as Control-PA and Control-PN. In Apple Writer we used Control-V to start



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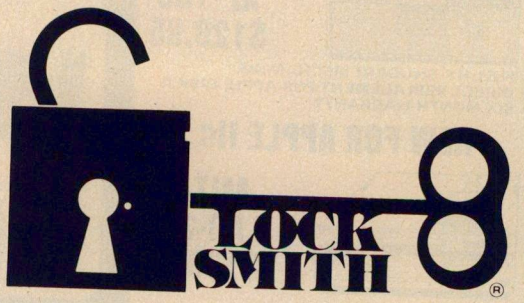

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CIRCLE 259 ON READER SERVICE CARD

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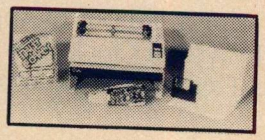

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CIRCLE 292 ON READER SERVICE CARD

an Escape command, followed by one of the codes in the *Owner's Reference Manual*, such as Control-V&dD to begin underscoring.

The LaserJet PLUS is compatible with many computers, including models from Hewlett-Packard, IBM, DEC, and AT&T. It requires either an RS-232 or a parallel interface and works with any program that works with the ThinkJet or LaserJet.

The Apple LaserWriter can hook up to any Macintosh through AppleTalk—all you need is a cable to connect the two. As with the HP LaserJet, an installation program is necessary, but in this case it comes with the printer. The installation program copies a printer driver onto any start-up disk and adds menu selections for the built-in fonts: Courier, Times, Helvetica, and Symbol. Any Macintosh program you use with the updated start-up disk will show these selections in its Font menu.

No installation program is yet available to make a marriage of the LaserWriter and any Apple-II-series computer an easy one, although it is possible with the right combination of cables and software.

You can also hook up the LaserWriter to IBM PCs or PC-compatibles, but this connection is similar to the connection of the Apple-II-series computer and the LaserJet. You need to purchase extra software to help your current text files and formatting commands work with the printer.

Software Requirements

All the printers we looked at require some special software to let them work with most application programs.

More than 150 programs are said to be compatible with the LaserJet, including three UNIX word-processing programs, but on most machines you also need an interface program to run the LaserJet with any application software. Hewlett-Packard offers a four-page list of software that works with the LaserJet and a variety of computers including the IBM PC, Wang, Macintosh, and Decmate II and III. The list also mentions various network-system manufacturers. Many of these packages are specific to the word-processing program you are using. For example, two different vendors offer software that translates WordStar's formatting commands into the LaserJet's Printer Control Language and adds commands for font selection. Unfortunately, the list has no software for the Apple II series of computers.

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Epson	
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FX-185	For
LX-80/90	Call
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DTS101 Dual Mode Color 10"	185.00
DTM140 Hi-Res 14" RGB Color	395.00
Princeton Graphics	
HX-12 RGB	439.00
RGB-80 Interface	149.00
Teknika	
MJ-22 RGB Color Monitor	299.00
Sakata SG-1000 Green	94.00
SA-1000 Amber	115.00
SC-100 Composite Color	145.00
Taxan 115 12" Hi-Res Green	115.00
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Shipping Charges: Software—$2.50 Minimum charge U.S. Mainland. With C.O.D. shipments add an additional $1.90 U.S. postal, APO, and FPO add 3% ($5.00 Min.). Alaska or Hawaii add 6% ($10.00 Min.). Canadian orders add 10% ($15.00 Min.). Foreign Orders except Canada—Add 18% ($25.00 Min.).

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CIRCLE 299 ON READER SERVICE CARD

LaserJet can also work with the LaserJet PLUS. Hewlett-Packard lists seven word-processing programs, six graphics programs, and three page-formatting/typesetting programs that can take advantage of the LaserJet PLUS's enhanced features, and we can expect more programs in the future to use these capabilities fully.

As we have mentioned, Apple's LaserWriter comes with an installation program for the Macintosh that adds a printer driver to any start-up disk, along with pull-down menu selections for the built-in fonts. Installation programs for IBM PCs and PC-compatible machines are made by other vendors, but no such installation program exists yet for the Apple II series.

Growing Presence

Laser printers offer significant advantages over other output devices. We're likely to see laser printers replacing noisier, often slower and less flexible letter-quality printers that have worn out under the stress of heavy impact-process printing. Laser printers also compare favorably to the admittedly less expensive dot-matrix printers, whose main drawbacks are noisiness and the inability to produce smooth, curved lines. Thermal printers—another alternative—offer a quiet, non-impact process, but they work best on paper with a smooth finish; laser printers, on the other hand, work with any xerographic paper stock. Similarly, ink-jet printers are quiet and offer infinite possibilities for graphics and type sizes and styles, but the ink bleeds on porous paper, making letter edges indistinct. Like these last two printer types, the laser printers can print directly onto transparency sheets.

Finally, the one advantage that no other output device has offered until now is near-typeset-quality output that is much less expensive and that uses a much cleaner process than phototypesetting. As much as the content of any business communication, the appearance of the printed page has a tremendous influence on whether a message is read and how it is received.

Laser printers are already beginning to change our expectations about in-house documentation. As resolution improves and more page-composition systems become available for these printers, more companies are likely to cut their typesetting costs by investing in these systems and bringing their document production in-house. ✚

Diane Burns and S. Venit run a graphic-production shop in San Francisco, using a Macintosh and a LaserWriter printer to produce commercial art. They recently coauthored Mac at Work, *published by Wiley Press.*

▸ PRODUCT INFORMATION

Apple LaserWriter
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: $6995

HP LaserJet and LaserJet PLUS
Hewlett-Packard Company
11000 Wolfe Road
Cupertino, CA 95014
(800) 367-4772
List Price: Laserjet, $3495; LaserJet PLUS, undetermined at press time

Laserstart installation disk
Softstyle
7192 Kalanianaole Highway
Suite 205
Honolulu, HI 96825
(808) 396-6368

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CIRCLE 117 ON READER SERVICE CARD

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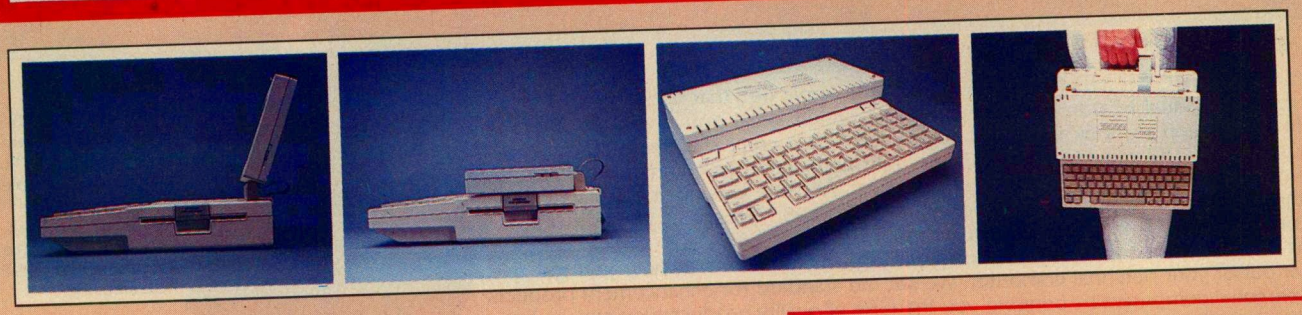

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THE RIGHT CONNECTIONS

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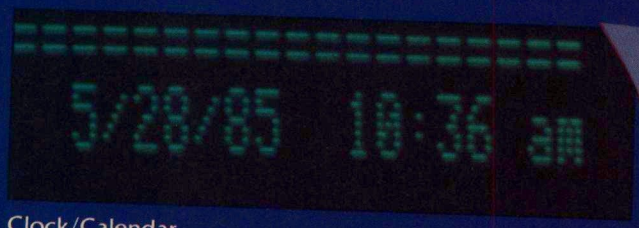
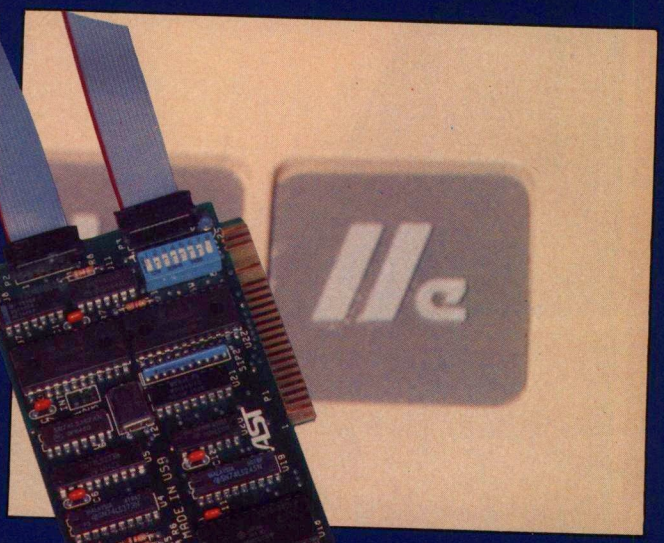
Modem serial port

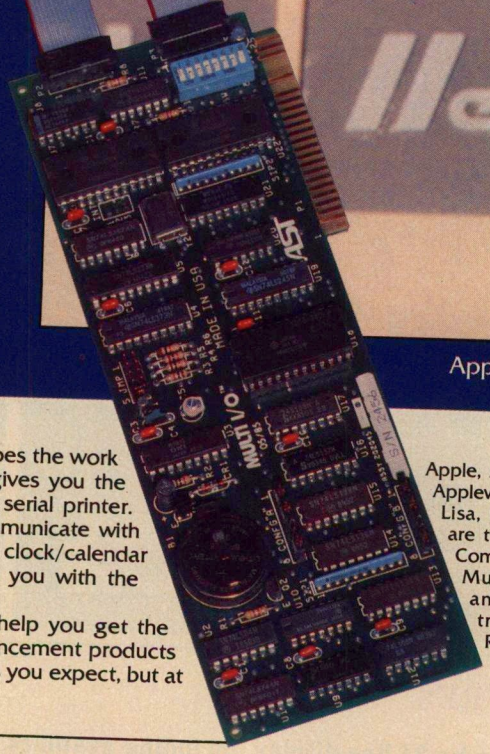


Clock/Calendar

Software Utilities



Apple IIe compatible



AST's Multi I/O™ is a multifunction card for the Apple IIe™ that does the work of three individual boards. First, the Multi I/O printer serial port gives you the right connection to hook up your ImageWriter™ or a compatible serial printer. Second, Multi I/O provides you with the right connection to communicate with the outside world via the modem/terminal port. And the versatile clock/calendar is the right connection for AppleWorks™ and ProDOS™ providing you with the accurate date and time even when your computer is turned off.

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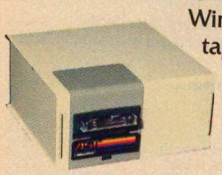
MicroStar™ is the 10 MB hard disk and tape backup (opt.) system that provides the right connection between the Apple IIe and dependable 3.5" Winchester Disk/Cartridge tape mass storage.



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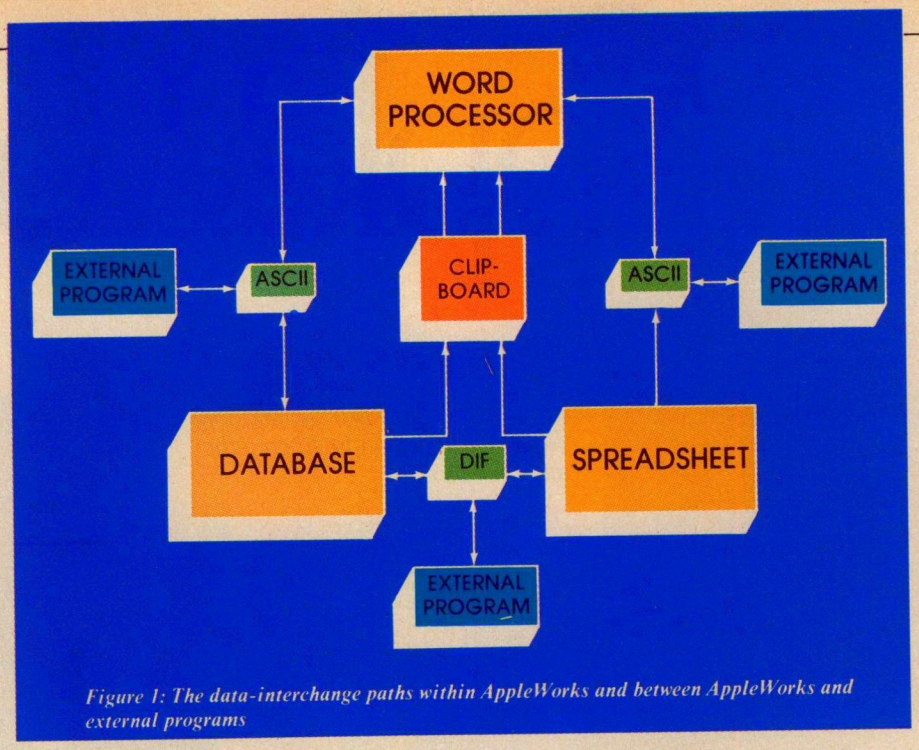


Figure 1: The data-interchange paths within AppleWorks and between AppleWorks and external programs

▶ SOFTWARE/BY CHARLES A. RUBIN

MOVING DATA WITH APPLEWORKS

Standard file formats simplify data interchange among programs.

AppleWorks has gained enormous popularity because it combines the three most popular personal-computer applications (word processing, spreadsheeting, and database management) in one easy-to-use program. If AppleWorks is functional, it is also highly flexible. Using the Clipboard, you can move AppleWorks' own spreadsheet or database data into word-processor documents. Furthermore, AppleWorks spreadsheets, database files, and word-processor documents can exchange data among themselves and with external programs through the use of DIF or ASCII file types.

These paths of data interchange let you use AppleWorks as a unified data manager, rather than simply as a convenient collection of three programs. You can turn spreadsheets into database files; send database files via modem to other computers; and import data from outside sources such as information utilities, templates, or other programs into an AppleWorks application. By following a few guidelines, you can use AppleWorks as the primary vehicle for accessing and manipulating a vast array of computer data.

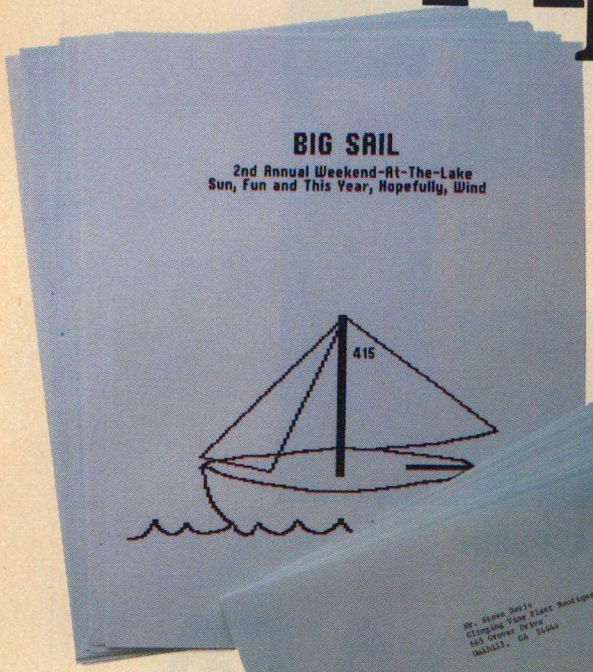
Recycling Data within AppleWorks

The AppleWorks manual explains how you can print spreadsheet data or database reports to the Clipboard and then use the Copy command to move such data into word-processing documents. Actually, though, any of the three applications can exchange data, thanks to standard file types.

Figure 1 shows that all three of the applications have at least one standard file-type option in common. The spreadsheet can export data to the database in either the DIF or ASCII format, and the database can send data to the spreadsheet in the DIF format. The word-processing program can use ASCII files from either the spreadsheet or the database, and ASCII word-processing files can be used by the database.

The procedure for exchanging files that have standard formats is fairly

AppleWorks™

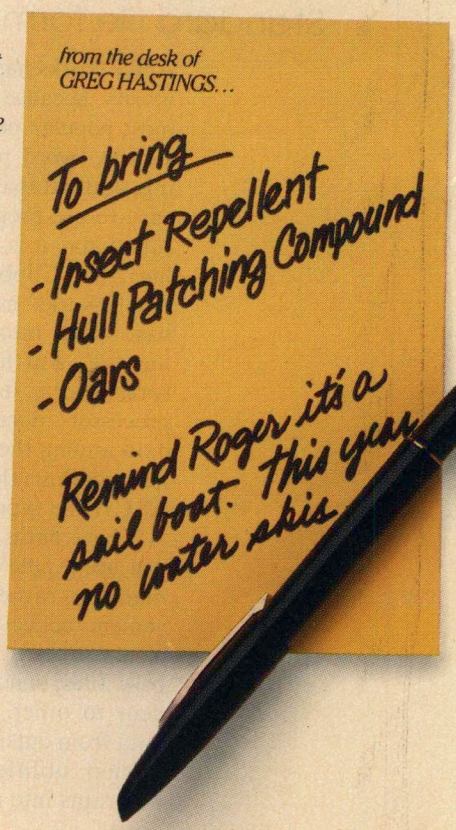


Only Pinpoint adds pictures to any AppleWorks document. So you can create party invitations that are truly exciting. Even if the weather isn't.

Don't spend hours addressing envelopes and misspelling names. Pinpoint picks up names and addresses from invitations (or any documents) and drops them, letter perfect, onto envelopes. Even if you don't always spell those tongue-twisting names right, at least you'll be consistent.

One glance and you can see your social schedule for months ahead. So it's a snap to slip this year's party in between the garlic festival and your breakdancing lessons.

Jot down important thoughts whenever they strike. The note pad is perfect for reminding you of things you can't do without. Or things you can.



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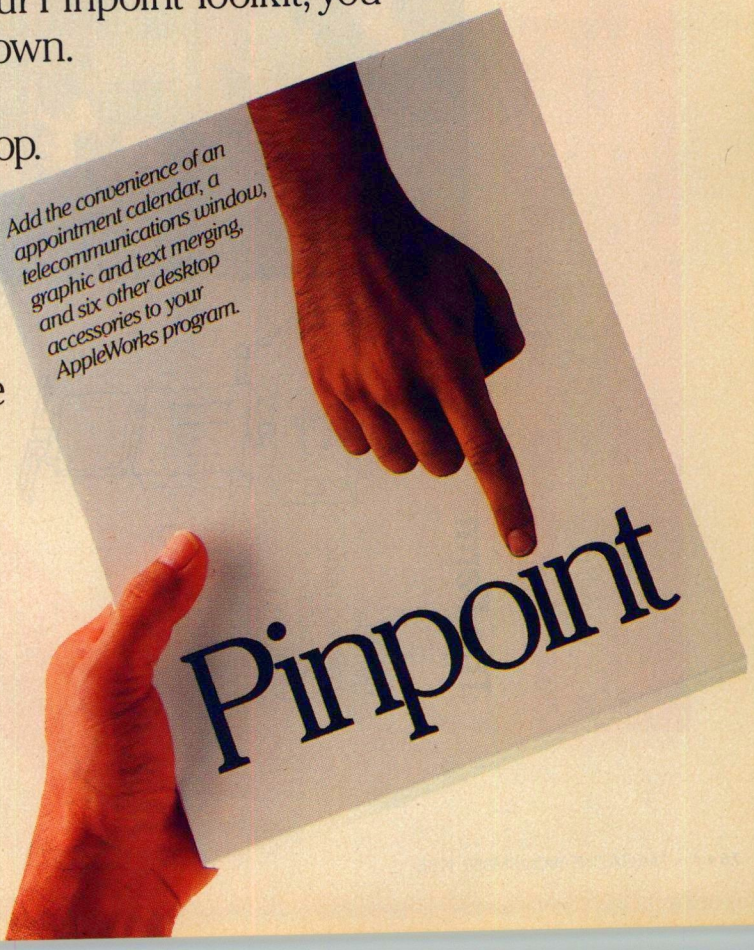

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simple. Once you have selected the data you want to transfer (either by creating a database report format, selecting data via the Print command in the spreadsheet, or using the Print command in the word-processing program), you print the data to an ASCII or DIF file on a disk, instead of to a printer. From the word-processing, spreadsheet, or database program, you can choose A text (ASCII) file on disk to save files in the ASCII format. The database and spreadsheet programs also have another option: A DIF (TM) file on disk. Choosing this option saves the data in the DIF format.

Once you have saved your data in a standard format, you can use the standard file as a data source when you create a new file. If you want to use some DIF database data in a spreadsheet, for example, you can choose From a DIF file on disk instead of From scratch from the Spreadsheet menu. In creating a database file, you can use either DIF or ASCII files as data sources.

After you've chosen one of these options, you type the name of the file, and the data is loaded into a new AppleWorks spreadsheet or database file. This is the general procedure, although you need to keep some specific considerations in mind when you transfer DIF and ASCII data from the database or spreadsheet programs.

DIF File Transfers

The key limitation of DIF as a transfer format is that it doesn't store spreadsheet formulas, only spreadsheet data. When you transfer database files, you'll notice that category names, calculated categories, group totals, and other database features don't transfer either. Otherwise, DIF is an ideal format for moving spreadsheet or database files.

Like most spreadsheets and databases, DIF stores data in rows and columns, so data from a series of categories in a database matrix is easy to move into a series of columns in a spreadsheet. In the same way, each column of data from a spreadsheet file automatically becomes a category in the database's multiple-record layout.

Saving a database file in the DIF format is simply a matter of choosing an option, but saving spreadsheet data to a DIF file is slightly more complex. When you print spreadsheet data to a DIF file on disk, AppleWorks asks you whether you want the file saved in row or column order. Knowing the correct order to specify is a matter of knowing what order the program that will ultimately use the DIF data expects.

Suppose you're moving spreadsheet data to the AppleWorks database. The database program expects DIF files to have been stored in column order, so you tell the spreadsheet to print to a DIF file in column order. If you choose row order instead, the data that was in columns will form rows in the database file, and the data that was in rows will form columns—instead of having row labels running down the left-hand column as they should, you'll have labels running across the top row.

Both the AppleWorks spreadsheet and database programs expect imported DIF files to be in column order, but only the spreadsheet gives you a choice about the order in which its DIF files are stored. The database program automatically stores DIF files in column order. If you will be using a DIF file in an external program, you should check that program's manual to see which order it expects DIF files to have, if any. In many cases (with VisiCalc, for example), the external program gives you a choice of row or column order when

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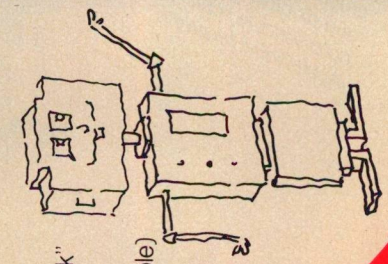

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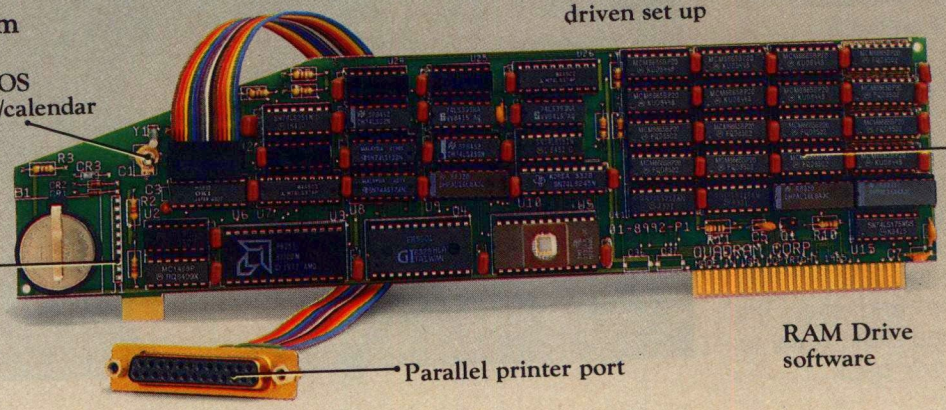

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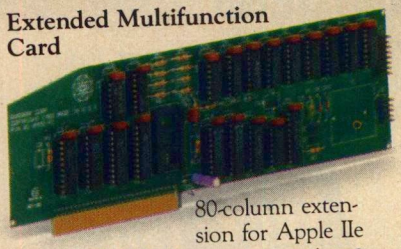

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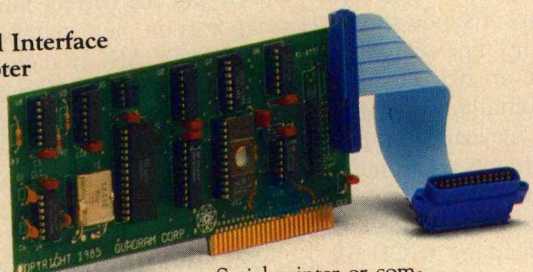

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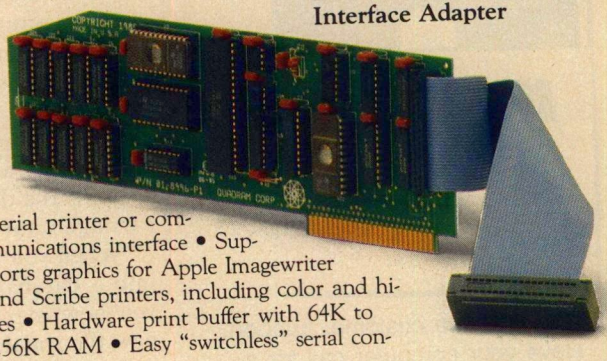

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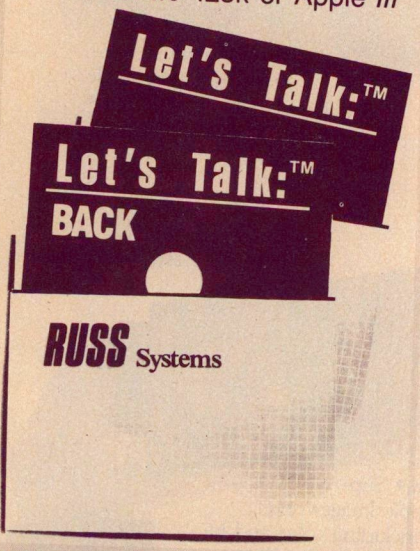

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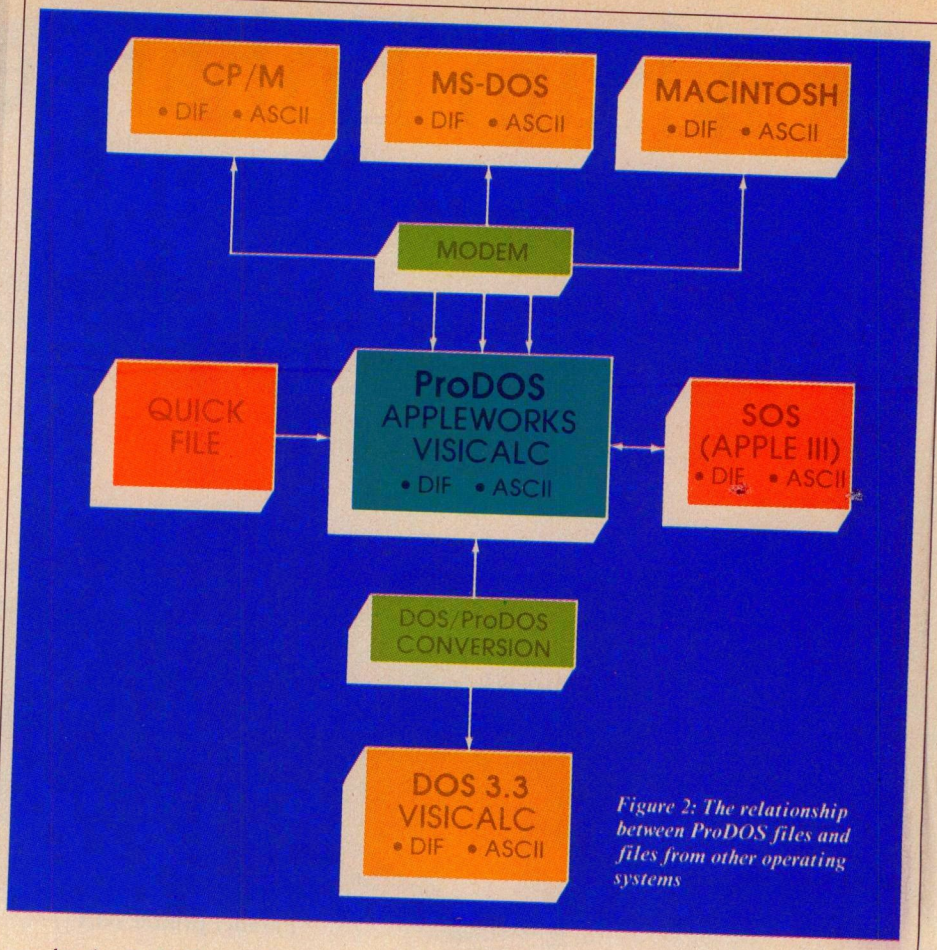

Figure 2: The relationship between ProDOS files and files from other operating systems

you load a DIF file, so it doesn't matter which order you choose when you save the DIF file from AppleWorks.

ASCII File Transfers

The ASCII format, on the other hand, doesn't store data in rows and columns. You don't have to worry about the storage order of the data, but it's also impossible for a spreadsheet or database program to know how many columns or categories to create for the incoming data. When you save a database or spreadsheet file in the ASCII format, each cell or category entry is stored on a separate line, followed by a carriage return. Thus, a single spreadsheet row that contains nine columns of numbers is stored in an ASCII file as nine separate lines containing one number each. An ASCII file loaded into the spreadsheet will form only one column, with all the data between each pair of carriage returns occupying each cell.

When you try to load an ASCII file into a database file, the program asks you how many categories of data the new file should contain. Normally, you define and name data categories first when you create a database file from scratch. When you load existing ASCII data into a database, however, you haven't defined the categories yet. At this point, the database file doesn't care whether its categories are named or not, but it needs to know how many categories (or columns) to create so it can arrange the incoming data.

The database program treats all the data between a pair of carriage returns in an ASCII file as a single entry. If your ASCII file is a series of three-line addresses, for example, each line is an entry. In this case, you should specify three categories for the new database file—when the file loads, each line in the ASCII file will go into a separate data category in the new database file. Specifying the correct number of data categories in new database files you create from ASCII data is extremely important. If you tell the database program to create one category before importing your file of three-line addresses, for example, each of the three lines will be treated as a new record, instead of as a different data category.

You have the option of creating ASCII files from AppleWorks spreadsheets or databases; therefore, you can use them as sources for files in other database programs. Because it ignores the original format of the data, though, the ASCII format isn't very suitable for transferring spreadsheet or database files. The lesson here is that you should use the ASCII format to transfer data-

base or spreadsheet files only as a last resort.

Moving External Files

The standard file formats also make it easy to move external files to and from AppleWorks. Any DIF or ASCII file created by another program can theoretically work in AppleWorks, and other programs can use AppleWorks DIF and ASCII files. Depending on the source or destination of the file, you may have to convert files (see figure 2).

You can transfer a spreadsheet or database file created with CP/M or MS-DOS programs as DIF files, for example, but if you want to use such a file in AppleWorks, you have to send it via modem. (Telecommunications is the great equalizer among computer systems: Even if two computers don't use the same operating system or processor, they can communicate via modem by using standard file formats such as ASCII and DIF—as far as modems are concerned, DIF files are just ASCII files with some built-in formatting.) Similarly, you need a modem to transfer AppleWorks DIF files to a CP/M or MS-DOS program.

If you're using a ProDOS communications program on your Apple, you can send or receive DIF or ASCII files without taking any extra steps. You can use imported files with AppleWorks according to the methods above. If you're using a DOS 3.3 communications program, however, you'll have to transfer the file to a ProDOS data disk (if you've received an external file) or from a ProDOS data disk (if you want to send an AppleWorks file). You can accomplish these transfers with the DOS/ProDOS Conversion Program that comes on the ProDOS User's Disk. If you didn't get a User's Disk with your Apple, you can buy one, along with the *ProDOS User's Manual*, for $40 at your Apple dealer.

The only other operating system whose files are directly compatible with ProDOS is the SOS operating system of the Apple III. If your spreadsheet or database DIF file comes from an Apple III, you can use it directly with AppleWorks without conversion.

Other transfer options open to AppleWorks users are from VisiCalc files to the spreadsheet and from Quick File files to the database. These options are available from these applications' file-creation menus and are discussed in the AppleWorks manuals. Quick File is a close relative of the AppleWorks database, so these files transfer easily and completely without conversion. Category names do transfer, and you don't have to worry about incompatible data elements between the two files, since the types and formats of data you are able to store with Quick File are the same as those that work with the AppleWorks database.

The method of using a VisiCalc file in an AppleWorks spreadsheet depends on which version of VisiCalc was used to create the file. If the file was created with a DOS 3.3 version of the program, you must convert it to ProDOS, using the method I've described. A newer version of VisiCalc runs under ProDOS, however, and you can use files created by it directly. To use a ProDOS VisiCalc file, you choose the option From a VisiCalc (R) file from the Spreadsheet menu and then specify the name of the VisiCalc file you want.

You should use the ASCII format to transfer database or spreadsheet files only as a last resort.

Unlike with DIF transfers, VisiCalc files usually transfer to the AppleWorks spreadsheet completely—formulas and all—with some exceptions. When a VisiCalc file contains formulas that use features or functions that AppleWorks doesn't include, those formulas won't transfer. VisiCalc can handle trigonometric functions such as sine and cosine, for example, but AppleWorks can't. Formulas containing such functions won't transfer to an AppleWorks spreadsheet. This consideration is particularly important if you plan to use VisiCalc templates with AppleWorks, since templates often use advanced spreadsheet functions.

Bottom Line

The bottom line with data interchange is that it lets users of one program share files with a wide variety of other programs, regardless of the kind of computer they are using. AppleWorks' data-interchange features give you the same flexibility, and when you combine that with three useful applications, you have a lot of data-handling power at your disposal. ✚

Charles Rubin's latest computer book, AppleWorks, *was published in July by Microsoft Press. He is also the author of* The Endless Apple *and writes features and reviews for various computer publications.*

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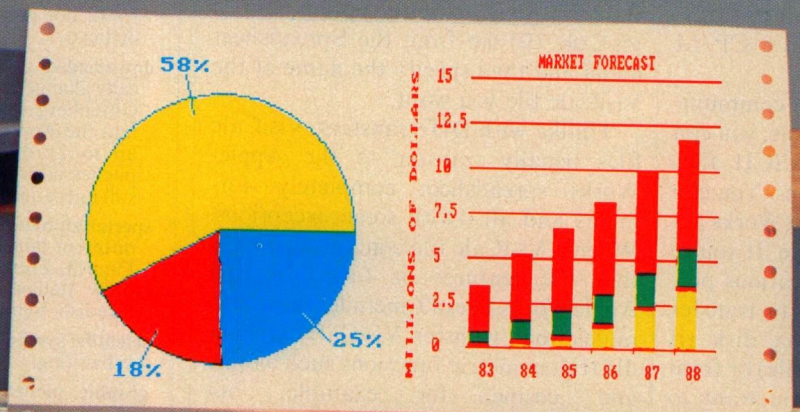

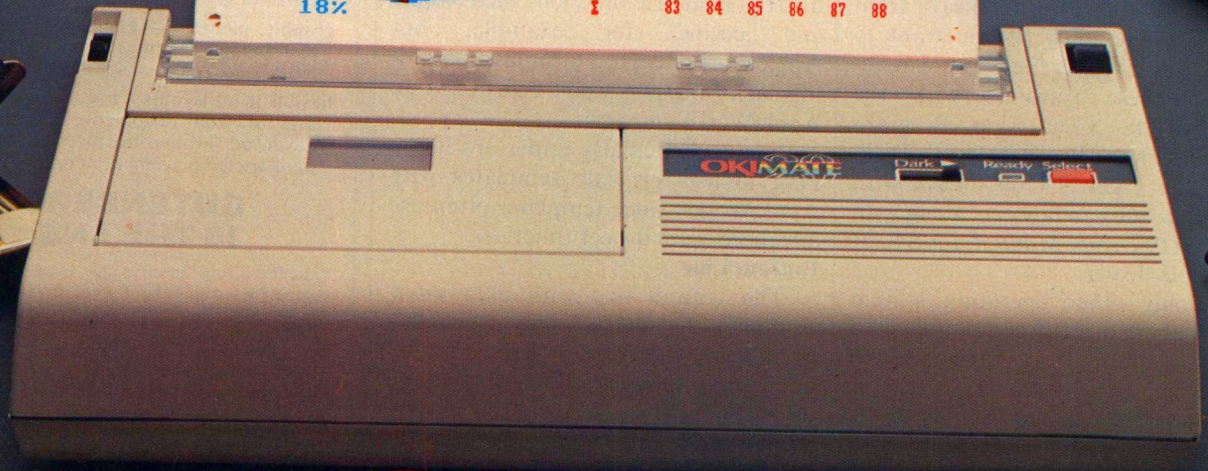

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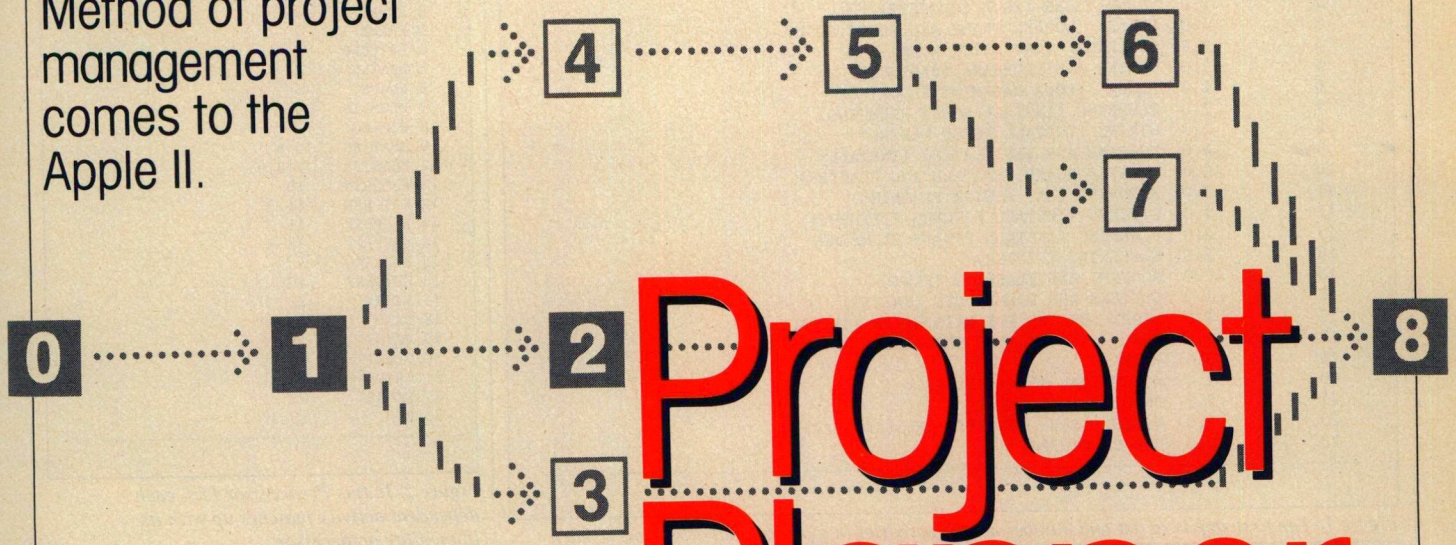

Project Planner

Almost all of us deal with project management from time to time, often without realizing it. Usually the project is small, such as preparing dinner for a few friends. At times it is more involved, perhaps a large-scale construction project or the introduction of a new product line.

Large or small, all projects have certain activities that must be accomplished and a particular order in which they must be done. Losing track of scheduled activities during a small project may just mean cold soup, but doing so with a larger project can spell financial disaster. With the right software, computers can be a powerful tool in project management, often making the difference between profit and loss by keeping things right on schedule.

Project Planner from Applitech Software is an easy-to-use program that applies the Critical Path Method (CPM) to the task of project management. Construction and management personnel have used the CPM technique for almost 30 years to organize and schedule the various parts of projects. Because it focuses on the critical activities in a project, the Critical Path Method lets you see which tasks are the most pressing and helps you organize your work accordingly.

The program is written in Pascal and comes on two disks, a start-up disk and the main program disk. An alternative version of the program is written on the back of each disk for use with 64K machines. The program disk remains in drive 1 during operation, while drive 2 is for data. Project Planner is capable of formatting new data disks.

Project Design

In order to use the system, you begin by loading project data from the data disk or designing a new project from scratch. When making a new project, you simply list the various steps involved, in much the same way you would with pencil and paper. You can enter activities in any order and put them into the proper sequence later on. Every project begins with Activity 0 (Start of Project) and ends with one called End of Project. Your job is to list the necessary activities between start and finish and tell Project Planner how much time to allot for each (see figure 1). You can use hours, days, weeks, or months as a measure of time. Project Planner has the ability to monitor as many as 100 separate activities (150 with 128K RAM) for each project.

> With the right software, computers can be a powerful tool in project management, often making the difference between profit and loss.

The time necessary to complete a project is not simply the sum of individual activities. Some parts of a project must be completed before others begin; other tasks can take place concurrently. If you're building a house, you have to finish the foundation before putting up the walls (a dependent relationship), but your plumbing and electricity can go in simultaneously, since neither activity depends on the other.

Project Planner needs to know which of your activities depend upon the completion of others, in order to calculate the time required for each. It calculates by means of a Predecessor List, where each dependent activity is matched to its immediate predecessor (see figure 2). In our house example, you indicate that Dig Footing is the predecessor of Pour Foundation, since the first activity must be finished before the second can begin. You need specify only the immediate predecessor of an activity; Project Planner calculates the other links in the chain automatically.

Graphic Display

When you've entered all of the data, Project Planner is ready to calculate total project time and display this information in graph form. Two graph styles are available, the Project Graph

ACTIVITY LIST FOR PROJECT HOUSEBUILDING

ACTIVITY	DURATION	NAME/DESCRIPTION ...
0	0.0	START OF PROJECT
1	4.0	FOOTERS (EXCAVATE AND POUR)
2	2.0	FOUNDATIONS (POUR CONCRETE)
3	4.0	FRAME (WOODEN FRAME AND ROUGH ROOF)
4	6.0	BRICKWORK (LAY BRICK WORK)
5	1.0	DRAINS AND PLUMBING (BASEMENT)
6	2.0	FLOOR (POUR BASEMENT FLOOR)
7	3.0	PLUMBING (INSTALL ROUGH PLUMBING)
8	2.0	WIRING (INSTALL ROUGH WIRING)
9	4.0	HEATING AND VENTILATING (INSTALL)
10	10.0	PLASTER BOARD (INSTALL AND PLASTER)
11	3.0	FLOORING (LAY FINISH FLOORING)
12	1.0	KITCHEN (INSTALL KITCHEN FIXTURES)
13	2.0	PLUMBING (INSTALL FINISH PLUMBING)
14	3.0	CARPENTRY (FINISH)
15	2.0	ROOFING AND FLASHING (FINISH)
16	1.0	GUTTERS AND DOWNSPOUTS (FASTEN)
17	1.0	STORM DRAINS FOR RAIN WATER (INSTALL)
18	2.0	SAND AND VARNISH FLOORING
19	3.0	PAINT
20	1.0	ELECTRICAL WORK (FINISH)
21	2.0	GRADING (FINISH)
22	5.0	WALKS (POUR CONCRETE AND LANDSCAPE)
23	0.0	END OF PROJECT

Figure 1: The first step is to list and number all the activities in a project and allot time to each.

PREDECESSOR LIST FOR PROJECT HOUSEBUILDING

#	ACTIVITY	PRECEDING ACTIVITIES...
1	FOOTERS	0
2	FOUNDAT	1
3	FRAME	2
4	BRICKWO	3
5	DRAINS	2
6	FLOOR	5
7	PLUMBIN	5
8	WIRING	3
9	HEATING	3 6
10	PLASTER	7 8 9
11	FLOORIN	10
12	KITCHEN	11
13	PLUMBIN	11
14	CARPENT	11
15	ROOFING	4
16	GUTTERS	15
17	STORM	2
18	SAND	14 19
19	PAINT	12 13
20	ELECTRI	19
21	GRADING	16 17
22	WALKS	21
23	END	18 20 22

Figure 2: In this Predecessor List, each dependent activity matches up with its immediate predecessor.

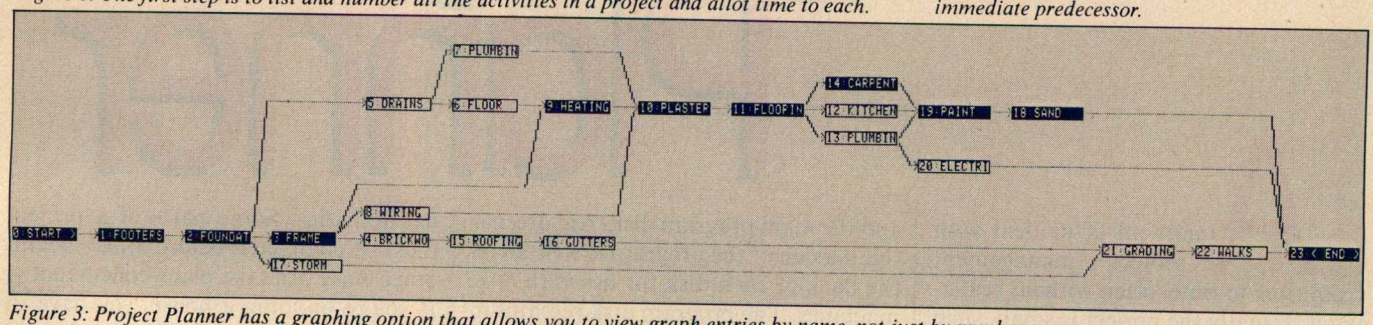

Figure 3: Project Planner has a graphing option that allows you to view graph entries by name, not just by number.

(PERT chart) and the Time Chart (Gantt chart).

The Project Graph shows each step in a project as a separate box on a horizontal line. You read the graph from left to right, beginning at the project's start and ending at completion. With most projects, activities take place along several parallel paths. Project Planner handles up to 15 (40 with 128K RAM) of these paths and automatically assigns the proper activities to each. The project graph shows which activities are most vital to the project's completion by arranging them along a highlighted line called the critical path. On a color monitor, this path is red.

An option within the 128K version of Project Planner allows you to view the graph entries by name, not just by number. Seeing the activities listed by name makes it much easier to visualize their interrelationship (see figure 3). Since a graph is physically longer when you arrange it by name rather than number, it does not always fit across the width of a video monitor. When space problems arise, Project Planner lets you change the scaling of the graph, to make it smaller, or scroll through the various parts of the graph, one screen-width at a time. This kind of display robs the graph of a lot of the impact it would have if it were visible in its entirety, however.

You can print out a project graph,

> All projects have certain activities that must be accomplished and a particular order in which they must be done.

but the results are disappointing. A long graph breaks into smaller sections, each printed as a separate strip, that you must tape or paste together to make a complete graph.

The printing options include a "small size" Print command and even one to print the graph sideways. Unfortunately, neither of these worked as promised with my Epson FX-80 printer, so I had to be content with printing multipart Project Graphs.

The second graph style, the Time Chart, lists activities along the left of the page and shows a graphic display of the time each activity requires along the right (see figure 4). It also indicates which activities fall along the critical path and thus need special attention.

Finally, Project Planner prepares a schedule showing the dates on which each activity should begin and end (see figure 5). The schedule also shows the latest possible dates on which an activity can begin or end without adversely affecting the project's timetable. The program calculates all the dates in the schedule from the Project Start Date, which you enter manually. You can get the Time Chart and the project schedule either in this calendar mode or in absolute time, based on arbitrary time units from Project Start.

You can edit or update project data any time, which makes it easy to play "what if?" with your project schedule. You can alter the duration of an activity at any time, and even rearrange the order in which tasks take place. If you're using Project Planner to manage a construction project and want to see how your overall schedule would be affected by a delay in delivery of materials, you need change only one item, and

```
                    TIME CHART FOR PROJECT HOUSEBUILDING

                         TIME ELAPSED
ACTIVITY
NUMBER  SEP-12-84    SEP-21-84    SEP-30-84    OCT-11-84    OCT-20-84  OCT-31-84
----------+------------+------------+------------+------------+------------+
  0 START  *
  1 FOOTERS =======
  2 FOUNDAT        ====
  3 FRAME             =======
  4 BRICKWO                  -----------.............
  5 DRAINS            --..
  6 FLOOR               ----..
  7 PLUMBIN             ------.......
  8 WIRING                   ----....
  9 HEATING                  =======
 10 PLASTER                        ==================
 11 FLOORIN                                         ======
 12 KITCHEN                                            --..
 13 PLUMBIN                                            ====
 14 CARPENT                                            ------....
 15 ROOFING                            ----...............
 16 GUTTERS                             --...............
 17 STORM            --.................................
 18 SAND                                                      ====
 19 PAINT                                                  ======
 20 ELECTRI                                                    --..
 21 GRADING                             ----...............
 22 WALKS                                 ---------.............
 23 END                                                          *
----------+------------+------------+------------+------------+------------+

EXPLANATION OF SYMBOLS:

*    START AND FINISH (DURATION 0)
===  DURATION OF CRITICAL ACTIVITIES
---  DURATION OF OTHER ACTIVITIES
...  SLACK OF OTHER ACTIVITIES
```

Figure 4: The Time Chart lists activities and graphically illustrates the time each requires.

SCHEDULE FOR PROJECT HOUSEBUILDING
(DAYS)

ACTIVITY NUMBER	ACTIVITY DURATION	ACTIVITY START: EARLY START	ACTIVITY START: LATE START	ACTIVITY FINISH: EARLY FINISH	ACTIVITY FINISH: LATE FINISH	ACTIVITY SLACK: TOTAL SLACK	ACTIVITY SLACK: FREE SLACK
0 START	0.0	SEP-12-84	SEP-12-84	SEP-12-84	SEP-12-84	0.0	0.0
1 FOOTERS	4.0	SEP-12-84	SEP-12-84	SEP-16-84	SEP-16-84	0.0	0.0
2 FOUNDAT	2.0	SEP-16-84	SEP-16-84	SEP-20-84	SEP-20-84	0.0	0.0
3 FRAME	4.0	SEP-20-84	SEP-20-84	SEP-26-84	SEP-26-84	0.0	0.0
4 BRICKWO	6.0	SEP-26-84	OCT-06-84	OCT-04-84	OCT-14-84	8.0	0.0
5 DRAINS	1.0	SEP-20-84	SEP-21-84	SEP-21-84	SEP-22-84	1.0	0.0
6 FLOOR	2.0	SEP-21-84	SEP-22-84	SEP-23-84	SEP-26-84	1.0	1.0
7 PLUMBIN	3.0	SEP-21-84	SEP-27-84	SEP-26-84	SEP-30-84	4.0	4.0
8 WIRING	2.0	SEP-26-84	SEP-28-84	SEP-28-84	SEP-30-84	2.0	2.0
9 HEATING	4.0	SEP-26-84	SEP-26-84	SEP-30-84	SEP-30-84	0.0	0.0
10 PLASTER	10.0	SEP-30-84	SEP-30-84	OCT-14-84	OCT-14-84	0.0	0.0
11 FLOORIN	3.0	OCT-14-84	OCT-14-84	OCT-19-84	OCT-19-84	0.0	0.0
12 KITCHEN	1.0	OCT-19-84	OCT-20-84	OCT-20-84	OCT-21-84	1.0	1.0
13 PLUMBIN	2.0	OCT-19-84	OCT-19-84	OCT-21-84	OCT-21-84	0.0	0.0
14 CARPENT	3.0	OCT-19-84	OCT-21-84	OCT-24-84	OCT-26-84	2.0	2.0
15 ROOFING	2.0	OCT-04-84	OCT-14-84	OCT-06-84	OCT-18-84	8.0	0.0
16 GUTTERS	1.0	OCT-06-84	OCT-18-84	OCT-07-84	OCT-19-84	8.0	0.0
17 STORM	1.0	SEP-20-84	OCT-18-84	SEP-21-84	OCT-19-84	20.0	12.0
18 SAND	2.0	OCT-26-84	OCT-26-84	OCT-28-84	OCT-28-84	0.0	0.0
19 PAINT	3.0	OCT-21-84	OCT-21-84	OCT-26-84	OCT-26-84	0.0	0.0
20 ELECTRI	1.0	OCT-26-84	OCT-27-84	OCT-27-84	OCT-28-84	1.0	1.0
21 GRADING	2.0	OCT-07-84	OCT-19-84	OCT-11-84	OCT-21-84	8.0	0.0
22 WALKS	5.0	OCT-11-84	OCT-21-84	OCT-18-84	OCT-28-84	8.0	8.0
23 END	0.0	OCT-28-84	OCT-28-84	OCT-28-84	OCT-28-84	0.0	0.0

(THE SCHEDULE TAKES INTO ACCOUNT ALL DURATION CHANGES)

Figure 5: Project Planner prepares this kind of schedule that shows the dates on which each activity should begin and end.

Project Planner will quickly prepare a Project Chart and Schedule reflecting the new information.

Project Planner has a few annoying quirks. For example, many of the program's prompts are displayed as inverse, 80-column text, making it hard to read on a monochrome monitor and almost impossible to decipher with a color monitor. In addition, many of the

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commands have a sluggish response, making you wonder if the program is waiting for you to press another key. This slow speed is especially troublesome in the Edit mode, where it is easy to give a wrong command.

On the positive side, Applitech's manual is easy to follow, nicely printed, and fully indexed—one of the best manuals I've seen. The package also includes a quick-reference card that lists program commands and gives a flowchart of system operation. The program disk is copy-protected, but a backup copy is available to registered users for a steep $20 charge.

I ran into a problem when I started using Project Planner. The program would crash and try to reboot at a particular point in the design process. Not finding an answer in the manual, I decided to call the manufacturer directly. Surprisingly, the manufacturer's phone number was not listed in the manual or on any of the accompanying literature; I eventually got the number from directory assistance. When I called, the staff was friendly and made a special effort to help. Although they did not have the answer immediately, they called back with a suggestion that helped me find and correct the problem (incompatibility with an accessory card in my Apple IIe). Finding a company that exhibits this much concern for its customers' satisfaction is refreshing.

Aside from presenting the problems I encountered while trying to print project graphs, Project Planner worked well and did everything it promised. Novices will appreciate its menu-driven format, and experienced users will find the ability to manipulate dates and activity durations invaluable. All in all, Project Planner is a good solution to what can be a complex task. ✚

Chuck Doherty is an independent computer consultant and free-lance writer from South Dartmouth, Massachusetts. His work regularly appears in several computer and audio publications.

▶ PRODUCT INFORMATION

Project Planner
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Cambridge, MA 02138
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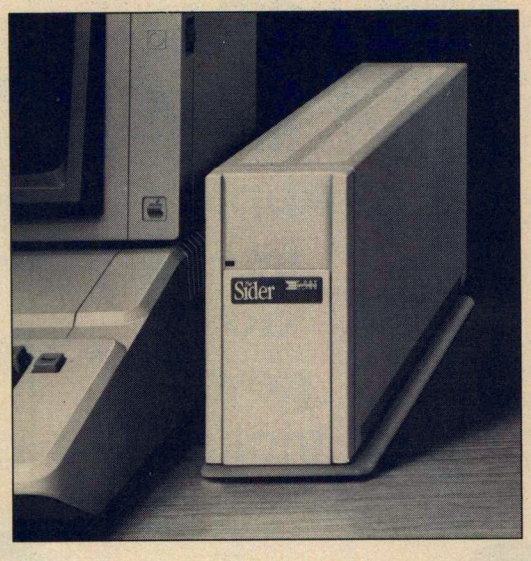

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CIRCLE 104 ON READER SERVICE CARD

The Race Goes

SwyftCard makes an old dog—the Apple IIe—do new tricks

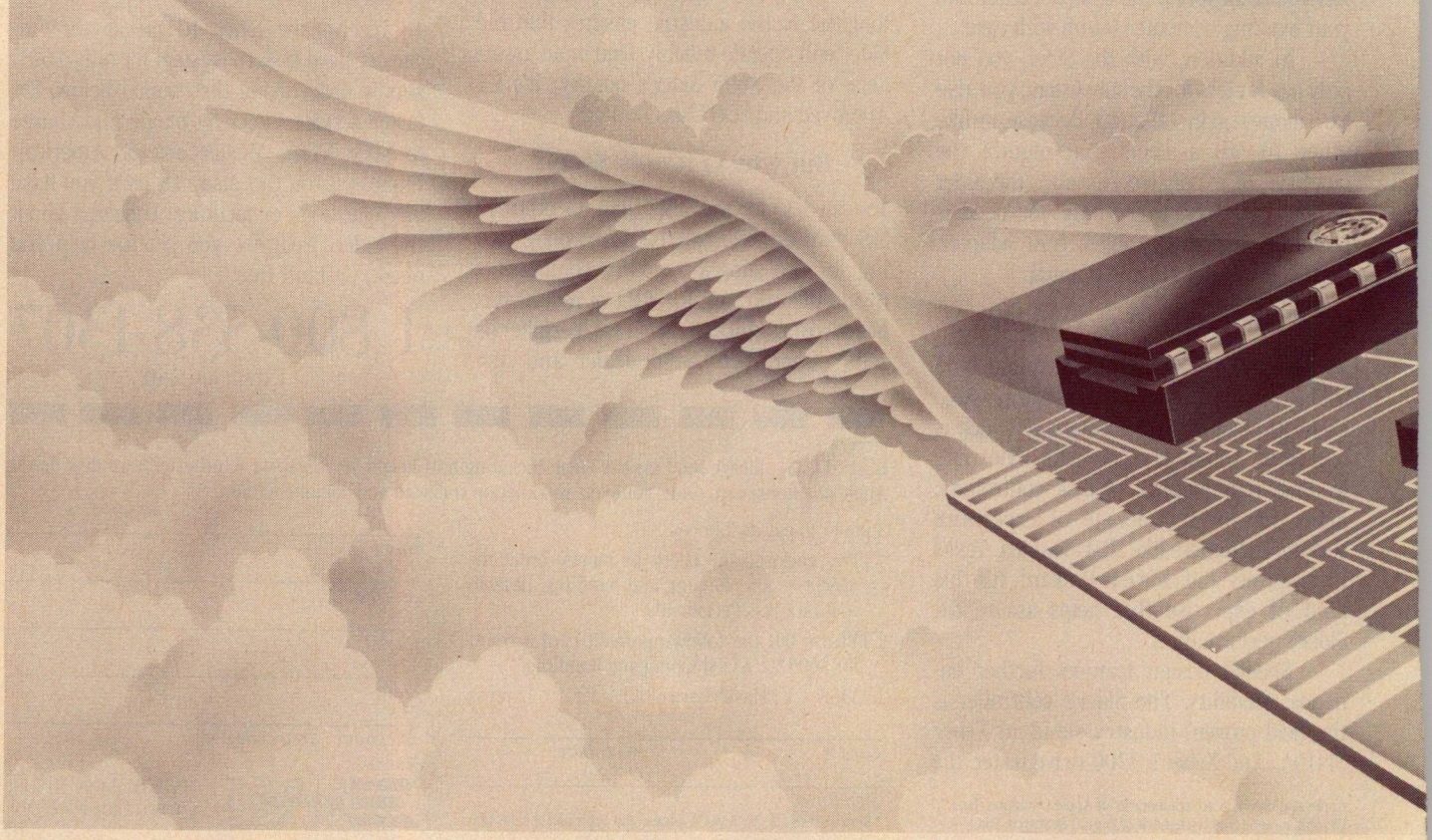
Will Rogers once said that anyone can make things complicated; it takes real genius to make something simple. This line of his came to me as I started using SwyftCard from Information Appliance, Inc.

SwyftCard is a small, multipurpose circuit board that plugs into slot 3 on an Apple IIe, turning it into one of the most useful tools you could ever want for word processing, information retrieval, calculation, BASIC programming, and—if you have a modem—communication. Little did I know that the "lowly" 6502 microprocessor at the heart of the Apple IIe was capable of feats I had to see to believe.

For example, SwyftCard's word-processing program lets you make the cursor jump to any location in a 40K document in a second or two, with only a few keystrokes. It lets you save a document of this size to a completely unformatted disk in less than eight seconds. It lets you perform computations in the middle of creating text without having to pull a calculator down from some menu (or out of a desk drawer). It lets you send documents to or receive them from remote computers with a single keystroke.

The key to this product's utility lies partly in the concern its designers had for the interaction between the computer and its users. Most people who use computers in their work use them to generate text-based documents, so SwyftCard was designed to make this task as easy as possible.

When you turn on an Apple IIe that contains SwyftCard, the disk drive runs for a second to see if it contains a disk. If the drive contains a program disk (your favorite game, for example), it assumes that you want to play that game instead of using SwyftCard, so it boots



the disk, and SwyftCard quietly sits in the background. If the disk contains a SwyftCard document, that document automatically loads into memory instead. If the drive doesn't contain a disk, you get a clear screen for creating a new document.

Documented Evidence

The SwyftCard word-processing program offers no formatting commands—it's actually a what-you-see-is-what-you-get text editor—although it does have automatic word wrap at the end of lines. To add text to the screen, you merely start typing. To correct errors as you make them, you press the Delete key. We don't always catch errors as we make them, though, so we need to be able to find them later to correct them.

If you are used to word processing in AppleWorks or MacWrite, for instance, you are familiar with the notion of using Control-key sequences to manipulate the cursor or the mouse to move the cursor to a desired location on the screen. For particularly large jumps, you may have to enter a Search mode in which you type a representative amount of the text to which you want the cursor to jump. A lot of research on the use of cursor-control keys and mice as vehicles for cursor movement shows that these are effective ways to move around within a document. SwyftCard provides a new method of cursor movement, however, that leaves these old tools in the dust.

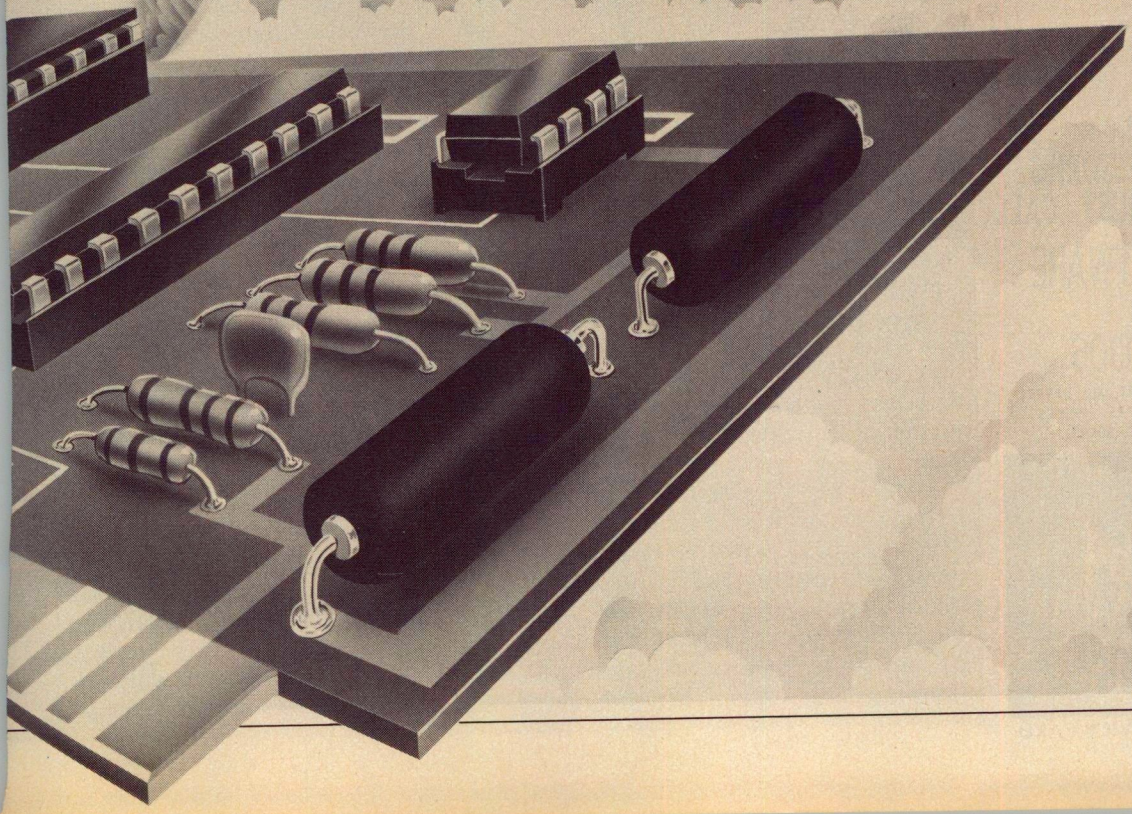
Leaping to Conclusions

The people at Information Appliance have developed a new way to move the cursor to a target, a process they call "leaping." Leaping takes advantage of the keys at each end of the Apple IIe space bar—the open-apple and closed-apple keys. The closed-apple key (on the right side of the space bar) means "leap forward," and the open-apple key (on the left side of the space bar) means "leap backwards."

But "leap forward" needs a target—a place to which to leap. You identify this target by holding down the appropriate leap key and typing the character sequence that starts with the target letter. For example, suppose I want to position the cursor at the letter *u* in the word *But* at the beginning of this paragraph. To do that from this location in the text, I hold down the open-apple key and type the letters *u* and *t* and press the space bar. These three keystrokes are enough to define uniquely the location of the *u* that I want.

What happens as you leap is that the letters you type while you're holding down a leap key form a character string, and the cursor automatically jumps to the nearest occurrence of this

To The SwYfT



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string in the leaping direction. For my example, when I typed *u*, the cursor jumped back to the first *u* it could find. When I added the *t*, it jumped to the first *u* followed by a *t*, and adding the space was enough to define the *u* I wanted to reach.

Leaping is easy to master, especially since it's just like typing. For example, if you want to scroll through a long document and you have used double Returns to separate paragraphs, you can leap to this pattern to jump from paragraph to paragraph. You can use the Tab key with either apple key to repeat the last sequence of characters. In SwyftCard terminology, the Tab key (when you use it with the apple keys) is called Again.

Selective Leaping

Leaping may get you from where you are to where you want to be, but sometimes you need to manipulate a block of text. To work with a large

THE MAN BEHIND INFORMATION APPLIANCE

Jef Raskin

Although the SwyftCard is the first product Information Appliance has released, it is far from the first product its founder, Jef Raskin, has designed.

Raskin has been interested in computing since he was a child—one of his high-school science-fair projects was a computer, in fact. He was introduced to Apple Computer in its early days when he worked as a reporter for *Dr. Dobb's Journal*. When he first saw the Apple I computer, he thought that its fledgling maker needed a manual for its new product, so he contracted to write it. The more he got to know his new client, the more he felt that Steve Wozniak was on the right track with his hardware, although Jef thought it was wrong to build a computer that accepted only uppercase letters.

Raskin's own company, Bannister and Crun, wrote manuals and books. His writers used Poly 88 personal computers (which did have uppercase and lowercase characters) with a word-processing program he had written. In 1976, his was probably the first company to use a microprocessor-based word-processing program.

Soon Raskin joined Apple full-time to work on a variety of projects. In 1979 he created a 400-page document that described the hardware, software, and marketing specifications for a computer named after his favorite apple, the McIntosh.

What made Raskin's vision of the Macintosh different from any computer built up until that time was that the software and hardware were designed to augment each other. Earlier computers, in contrast, were designed from the hardware perspective. Unfortunately, once he and the Macintosh project parted ways, the software effort became separate from the hardware. From Raskin's perspective, the result was some problems for the Mac—its sluggishness, the need for a second drive, and the large memory requirements of most applications.

Another Chance

Visions die hard, and Raskin was not one to give up on something he really cared about. He created a new company and called it Information Appliance, a name that implies an ease of use not normally associated with today's computer systems. SwyftCard seems to be a step in that direction, though, and Raskin predicts that within three years some of the ideas behind SwyftCard will be pervasive throughout the industry. The SwyftCard design was influenced strongly by a set of 40 human-factors-design criteria that made this product easy to use.

Although Raskin's professional life seems to center around computers, he has many other interests: He built an electric car when high-power transistors allowed him to try out a new idea for a high-current power supply. He is an avid participant in the field of model-airplane construction and equipment design, and an accomplished musician on a variety of instruments.

Positive Thinking

Looking at Raskin's interests, you wonder how he finds time to fit in all his activities. The key for him is getting over people's negative comments such as "You can't do that" and "It can't be done." He feels that if you accept other people's negative advice, you will only hold yourself back. For example, for 20

amount of text, you have to select it first. Selecting text with SwyftCard is easy. Leap to one end of the selection and then to the other—then press both the open- and closed-apple keys simultaneously.

Once you've selected a block of text, you can delete it with the Delete key. Deleted text is saved in a buffer, and you can reinsert it as many times as you want in any location in the document.

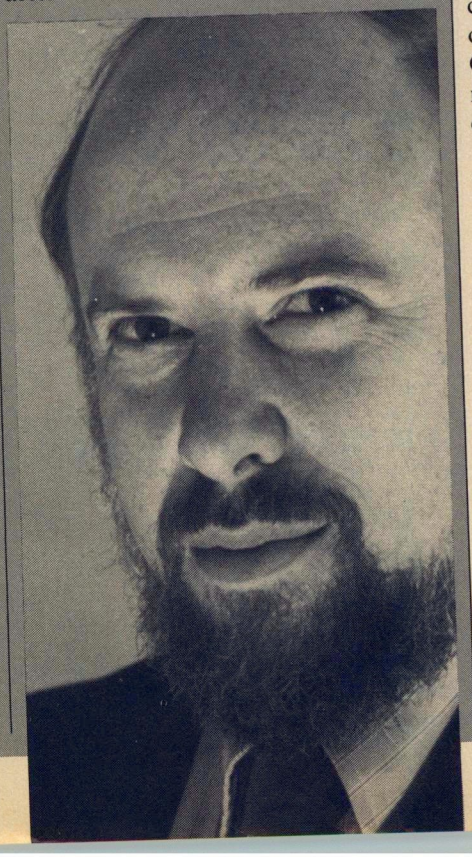
The Insertion command is one of six special commands in the SwyftCard system. One of the more intriguing of these is the Disk command (Control-W). Rather than having separate commands for reading, formatting, and saving information on a disk, SwyftCard has just one command and relies on context for everything else.

Amazingly, this approach works. For example, suppose you have created a document, inserted a blank disk in the drive, and pressed the Disk command. SwyftCard knows that the document hasn't been saved yet and assumes that your intention is to do so. It also notices that the disk is blank, so it formats the disk and saves the document—all in about eight seconds!

The designers of SwyftCard have enabled a single keystroke to replace a whole family of commands in other word processors.

years he had wondered what a piano would sound like with only one string per note, rather than the multiple strings that he was told all pianos "must" have. He finally bought an old piano with the goal of having it modified but had a hard time finding a piano technican who was willing to make the modification for him. Finally, he found someone to do the work, and the result was an instrument that produced a delicate and lovely harplike sound. An idea he had been carrying with him for 20 years finally bore fruit.

Jef Raskin keeps good track of his vision. He has eliminated a built-in sense of reluctance many of us have to try things that "can't be done." He believed he could build a high-performance computer system that needed only a handful of commands, and lots of people told him it couldn't be done. The existence of SwyftCard shows that Jef Raskin's positive thoughts were right, after all.



A Single-Keystroke Family

Now, suppose you place another document disk in the drive and give the Disk command again. In this case, since the system has saved the original document, it assumes that you want to see the contents of the document on the disk, so it loads the document automatically. Through the simple application of common sense, the designers of SwyftCard have enabled a single keystroke to replace a whole family of commands in other word-processing programs.

SwyftCard formats each disk so that it contains only one document (up to about 40K long), and therefore you don't need filenames or a directory. When you save documents, the system saves them along with the location of the cursor and any selected text. For example, when you reload the contents of the document, any selected text remains selected, and the cursor reappears in the position it was in when you saved the document. Another SwyftCard command, Get, retrieves selected text from one document and merges it with text already on the screen.

Farewell, Sweet Prints

To print material, you must select it first (selecting an entire document takes only three keystrokes), and then a single keystroke sends the selected text to the printer. Because Information Ap-

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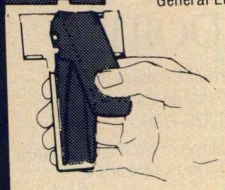

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pliance could not anticipate all the printers that might ever be connected to the Apple IIe, the designers provided a technique for letting individual users establish their own printer settings. These settings become part of a saved document, so you don't have to reenter them by hand every time you use the system.

Getting Down to BASIC

SwyftCard documents consist of text, but how that text is treated is up to the user. Using text purely as a document is not the only possibility. You can type BASIC commands or programs into a SwyftCard document and make them execute with the BASIC command. The obvious application for this feature is to use SwyftCard as a tool for writing BASIC programs, but it is much more useful than that.

> **SwyftCard was the result of extensive thought about how people might want to use computers if they had a choice in the matter.**

For example, suppose you want to create a document containing a catch phrase you like. You might assign this phrase to a character string by entering

```
P$ = "the Wonderama Symposia"
```

By selecting this text, entering the BASIC command, and then pressing the Delete key (to delete the string definition from the screen), you can create your document by typing I would like to introduce you to ?P$, the most exciting. . .

Once you've created the document, you can select each of the occurrences of ?P$ and execute the BASIC command, thus causing automatic entry of the desired text.

Another useful application for this command is to perform calculations in the middle of a line of text (for example, ?45.68+25.87). The BASIC command ?, which precedes the numbers, prints the result of the calculations.

Send It Simply

The remaining single-keystroke command that SwyftCard offers is the Send command. If you have a communications interface card (modem) in slot 2 of your Apple, pressing Control-C sends highlighted text to your modem in slot 2. Any incoming text automatically goes into your document. Entire documents can transfer back and forth between users with just a few keystrokes, all without any additional communications software.

The Package

Along with SwyftCard, you receive a floppy disk, a set of decals for labeling the commands on your keyboard's keys, and an instruction manual. One side of the diskette contains a file-conversion utility, similar to Apple's ProDOS-to-DOS conversion program. It allows you to convert a ProDOS file to a SwyftCard file, and vice versa. The other side of the diskette contains an easy-to-use on-line tutorial.

Preferences

SwyftCard was the result of extensive thought about how people might want to use computers if they had a choice in the matter, and the result is a spectacular piece of programming. My only complaint is that there is no mnemonic connection between the SwyftCard commands and the keys that invoke them. You do get decals for the key tops, however, and can even reassign the keys you use for various commands.

Accomplishing the Impossible

SwyftCard has accomplished something that I never knew was possible. It not only outperforms any Apple II word-processing system, but it also lets the Apple IIe outperform the Macintosh. For example, relocating a paragraph in a MacWrite document and saving the result on disk can take 35 seconds. The same task with SwyftCard (saving to an unformatted disk!) takes only 12 seconds.

Will Rogers was right; it does take genius to make things simple. ✚

Dr. David Thornburg has been active in the field of personal computers since 1978. He is the inventor of the Koala-Pad touch tablet and is the principal designer of Muppet Learning Keys. He has written more than ten books on computing.

PRODUCT INFORMATION

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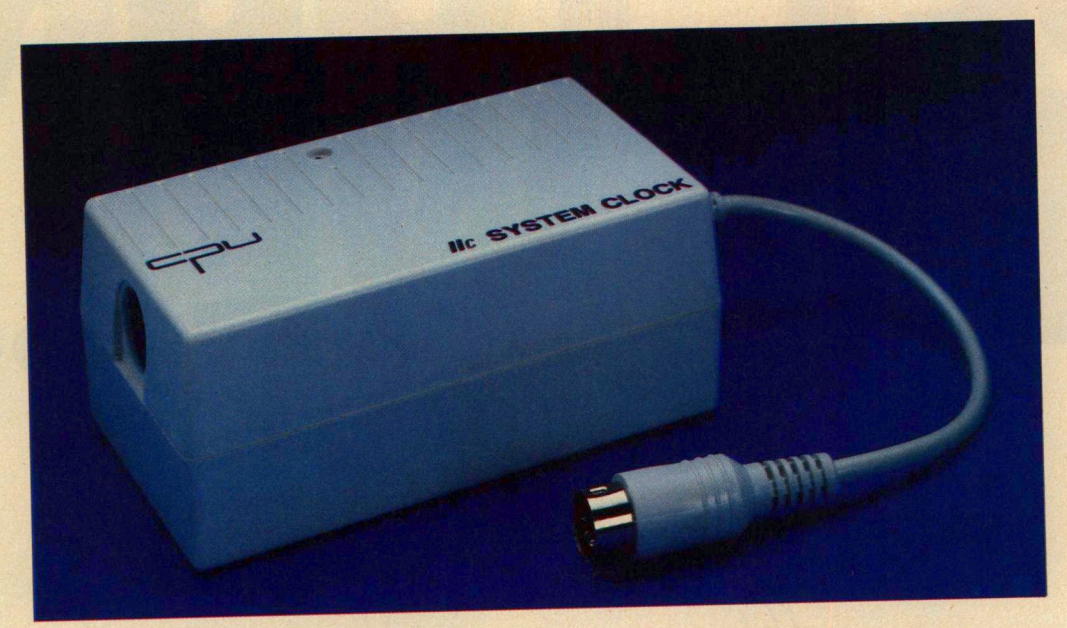

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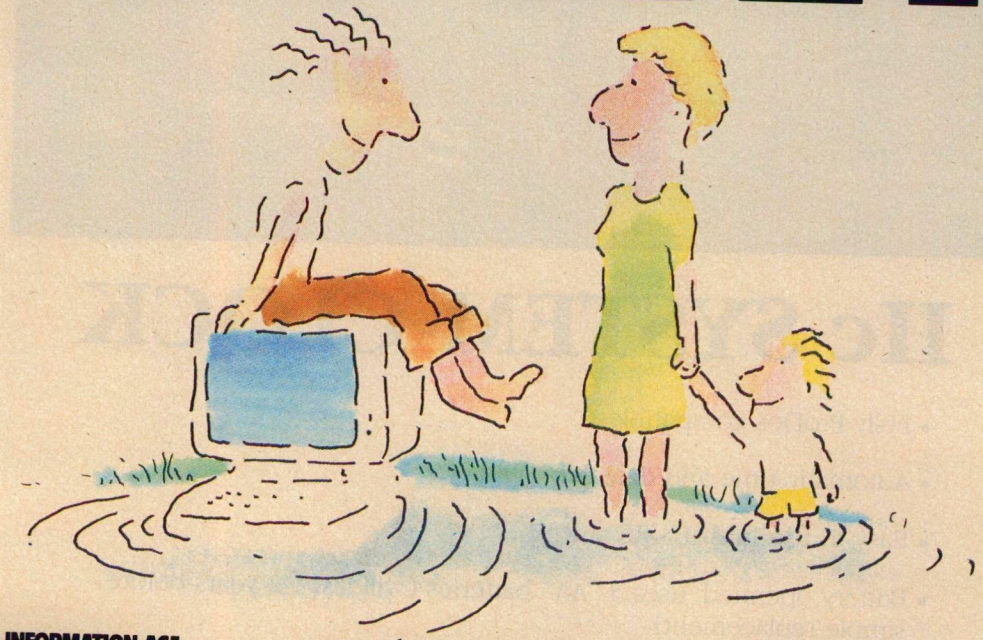

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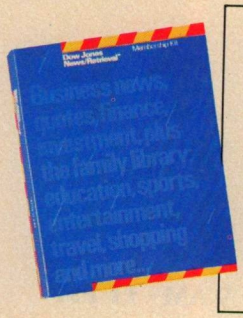

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THE LEARNING CURVE
BY DAVID D. THORNBURG

Creating classroom software with construction sets and authoring systems

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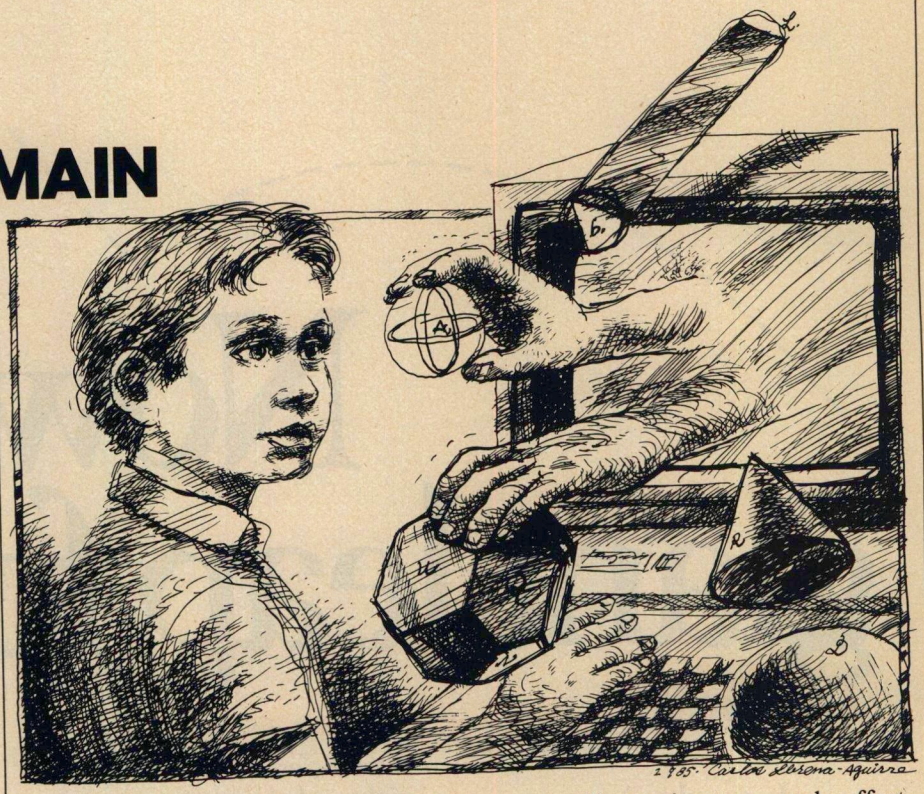

Many years ago, when the Russian space program caused us to reexamine our educational system, educators were encouraged to include new technology—filmstrip projectors, tape recorders, and the like—in their classrooms. This equipment was stuffed into thousands of schools throughout the country, only to lie largely unused in closets.

One of the reasons I have heard cited for the failure of the "audiovisual revolution" is the paucity of good software, but new technology by itself is meaningless. Unless filmstrips or tapes are worth using, there is no reason to incorporate any of these tools into the curriculum, no matter how flashy the new hardware may be.

Though most teachers now make some use of audiovisual tools, books are in no danger of displacement as the primary supplement to teachers' interaction with students.

Computers—The Next Bad Idea?

When computers started to become commonplace in schools, some people felt they would soon join the tape recorders and filmstrip projectors that were gathering dust in the hall closet. As it turns out, this prediction hasn't come true, largely because educational-software developers have been responsive to the needs of their market.

As pervasive as the classroom computer may appear, however, it is a long way from being a primary instructional vehicle. Some of the reasons are philosophical, but the major reason is one of practicality. In order for computers to serve the day-to-day needs of classroom teachers, educational software needs to be tailored to the specific style and interests of each teacher and adapted to the instructional needs of each class.

Adaptability is one characteristic of educational computing that separates it from books and most other instructional technologies. Along with the blackboard, copying machine, tape recorder, and videocassette recorder, the computer is one of a limited set of tools that teachers can use to create and deliver customized instructional material.

The computer is one of a limited set of tools that teachers can use to create and deliver customized material.

Unfortunately, few teachers take advantage of this capability of computers, even though a host of languages, authoring systems, and lesson-construction sets are designed to let teachers create their own materials. Most teachers feel that creating their own programs will require too much effort. Thus, languages such as PILOT languish on the shelf, as teachers make do with canned software packages that may or may not reflect the material and the instructional approach that they want to use.

The Failure of Authoring Systems

Why haven't traditional authoring languages such as PILOT been more successful? In PILOT's case, it's not because the language is hard to learn. I have conducted PILOT workshops in which teachers with no prior programming experience were creating lessons within one hour. I don't think that these tools have failed because of teachers' reluctance to spend time preparing materials. I have encountered many educators who are willing to spend hour after hour designing paper worksheets and lessons but who are not interested in spending the time to create a lesson on the computer.

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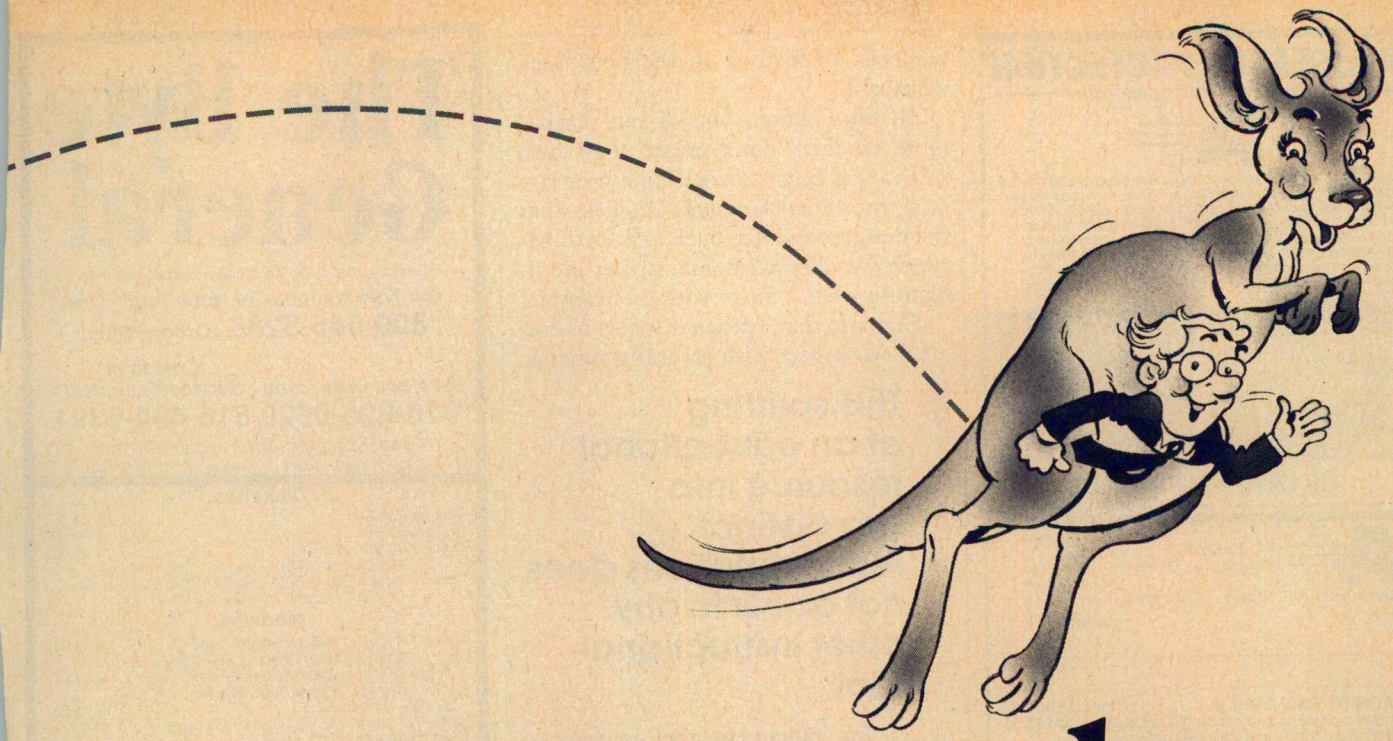

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teachers' dedication to the task, then what is it?

In my opinion, one of the reasons more teachers don't create their own software is because creating a program in a traditional language requires that the designer bounce back and forth between two distinct domains. Let me illustrate what I mean with an example.

Suppose that a teacher wants to create a worksheet with several geometric

This splitting of an educational resource into two distinct representations does not occur in any other instructional tool.

objects for students to label. In order to create this worksheet in the traditional manner, the teacher merely draws the figures on a sheet of paper, draws blank lines under each figure, creates a line for the child's name, and then runs off copies on a copier. At no time during the preparation of this material did the teacher have to work in any domain except the one that the learners would ultimately see.

Contrast this situation with the creation of a traditional computer program that accomplishes the same task. The teacher has to work in two domains: one for programming and the other for running the program. For example, the program designer might want to clear the screen before drawing the geometric figures. The mental image is one of a blank screen, but the computer instruction that accomplishes this task is a written instruction—CLEARSCREEN, for example.

Drawing and placing each geometric figure on the screen requires even more written instructions. Therefore, computer-based instructional materials have two representations from the teacher's perspective: the program listing and the images the learner sees when the program runs. The only way to influence the latter representation is to make changes in the former.

This splitting of an educational resource into two distinct representations does not occur in any other instructional tool. If teachers make a mistake at the blackboard, they can simply erase it, but if they find a mistake in the execution of a program, they have to debug the program's listing.

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Construction-Set Programming

An alternative to this style of program creation has emerged in software such as Pinball Construction Set (from Electronic Arts) and Rocky's Boots and Robot Odyssey (from The Learning Company). With each of these programs, users create programs from a construction set of primitive parts suitable to the domain of the program. In the case of Pinball Construction Set, the domain is the world of pinball machines, and in Rocky's Boots and Robot Odyssey I, it is the world of binary logic. In each of these programs, you always get a consistent view. Whether you're creating a program or using a program that was created by someone else, the view is the same.

If teachers make a mistake at the blackboard, they can simply erase it, but if they find a mistake in the execution of a program, they have to debug the listing.

This consistency of viewpoint may not matter to someone who is using a completed program, but it makes all the difference in the world to a novice programmer. If you can create, manipulate, test, rearrange, and assemble objects into their final form, all on the same screen and from the same viewpoint, you can easily build programs and test them incrementally.

Limited Domain

The only problem with programming methods of this type is that their domain of applicability is usually restricted. If a teacher is interested in letting students explore the physics of elastic rebound, Pinball Construction Set can be a useful tool, but it is worthless to a teacher who wants to build a lesson around the major battles of the Civil War. Even more subtle constraints are imposed by traditional authoring languages such as PILOT.

One of PILOT's strengths is that it simplifies creation of programs that engage learners in a dialogue with the computer. PILOT programmer John Starkweather's interest in such dialogues was what led him to design this language in the first place. Since PILOT makes dialogue programs so easy to create, it often serves as a tool for building lessons that present some material, ask the learner some questions, and evaluate the answers to these questions.

Although this method of instructional delivery is popular, it is not the only one. In fact, I believe that this dialogue approach is one of the least exciting ways to use a computer in education. Even though they are interactive, many teacher-created PILOT programs function like workbooks that drag learners inexorably, page by page, from beginning to end.

You can use PILOT to create other types of programs, but the ease of programming with it in the dialogue style tends to give most PILOT lessons the same "feel."

Contrast the dialogue method with the educational-computing approach of educational philosophers such as Seymour Papert, in which children spend at least some of their time at the computer tinkering and making discoveries without the "helpful" constraints of a multiple-choice question or a canned lesson. Compared with traditional authoring systems and the types of programs they give rise to, this approach to computer use represents another perspective altogether.

Since each teacher and learner needs access to different instructional styles, I think that a truly useful authoring system should allow the creation of educational material anywhere on the spectrum from step-by-step guidance to free-form exploration—in a domain whose objects of play and discovery the teacher chooses and creates.

Is Help at Hand?

The existence of a single authoring system of that sort would revolutionize the creation of teacher-designed programs and could finally make the computer a full-fledged part of the instructional toolkit.

In the next two months, I will describe, in some detail, two pieces of software that have the potential to make a software author out of every computer-using educator. The first is Filevision from Telos Software Products, a program that runs on my favorite classroom computer, the Macintosh! ✚

Dr. David Thornburg has been active in the field of personal computers in education since 1978. He is the inventor of the KoalaPad touch tablet and is the principal designer of Muppet Learning Keys. He has written more than ten books on computing, many of which are of interest to educators.

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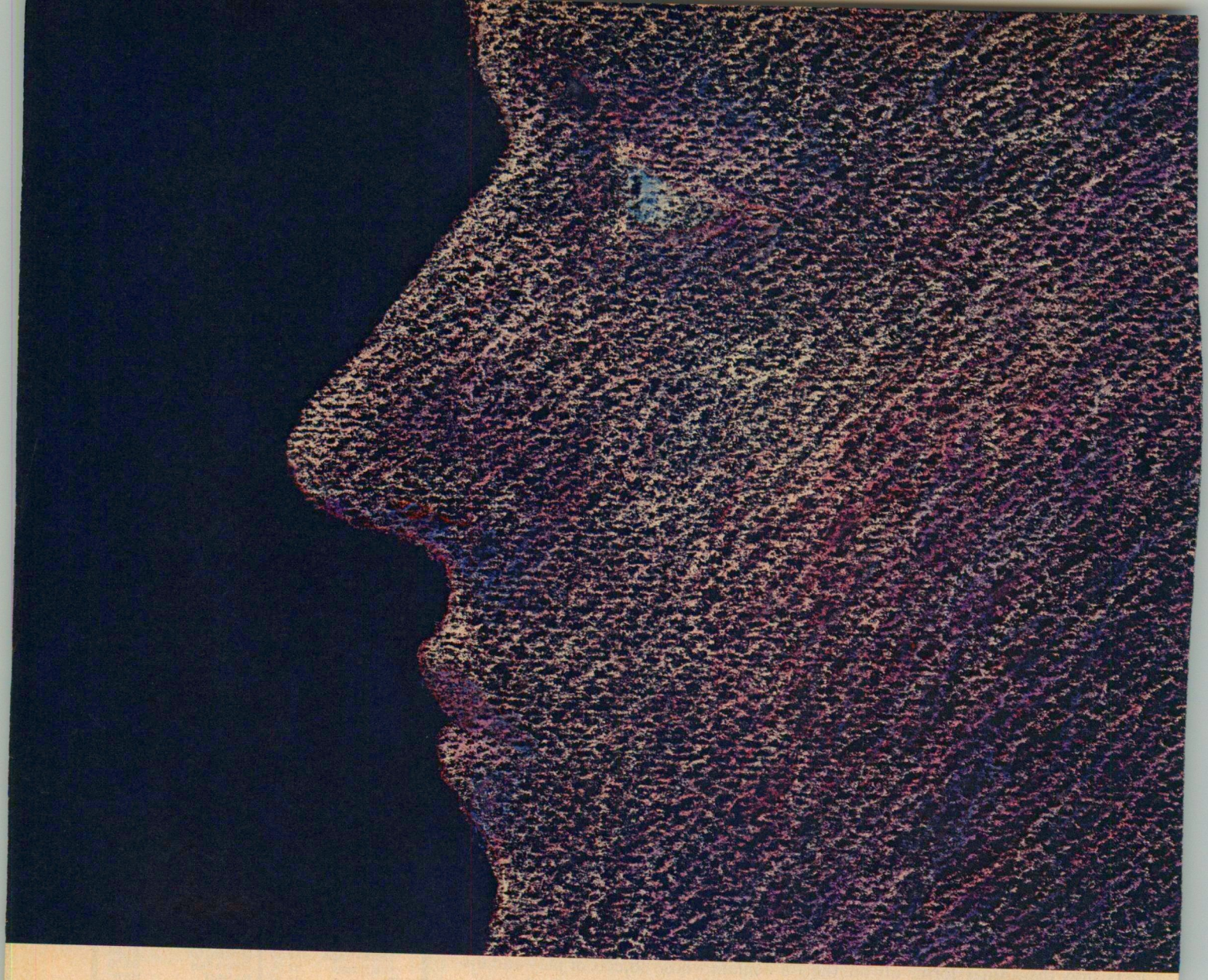

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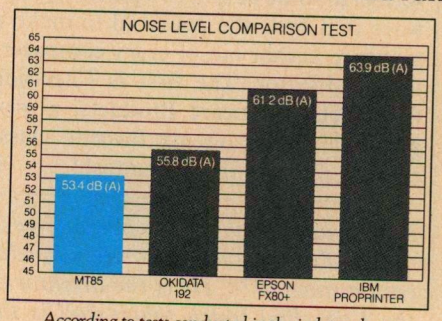

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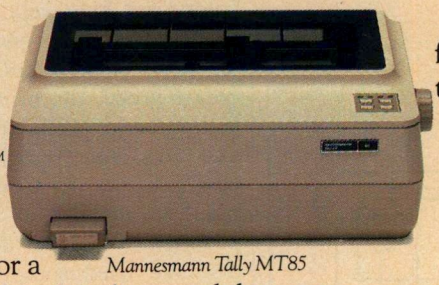

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CIRCLE 181 ON READER SERVICE CARD

SPEAKING OF GRAPHICS
BY ROBERTA SCHWARTZ AND MICHAEL CALLERY
From CompuServe to an electronic Ouija board

GRAPHICS ODDS AND ENDS

This month we've got a little of everything for the Apple II and the Macintosh: software and hardware—graphics on disk, on-line, and on paper.

GRAPHICS ON-LINE

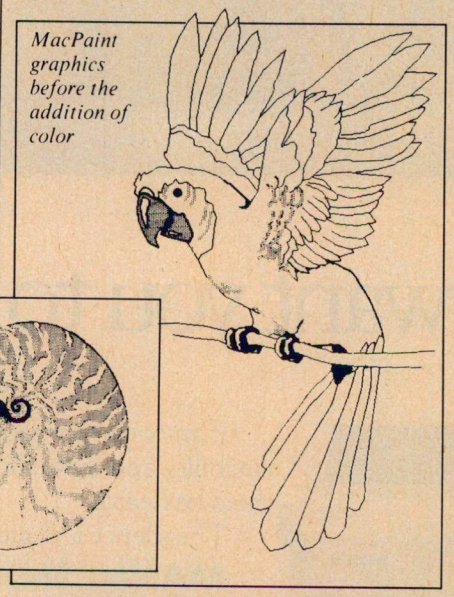
In July we promised you a sampling of Apple II graphics offerings on CompuServe. Here goes . . .

Like the MAUG (Micronetted Apple Users' Group) Macintosh section, the Apple II/III section contains a wide variety of graphics programs and demonstrations. Among the goodies is a program to convert high-resolution pictures to double-high-resolution pictures. This useful utility is distributed as shareware—if you find it useful, you're honor bound to send $20 to the author, Gene Warner III; if you can't use it, you should delete the file or give it to someone who can. It works only under ProDOS and saves the resulting double-hi-res image in the Dazzle Draw format (see "Speaking of Graphics," July 1985, pages 93–96).

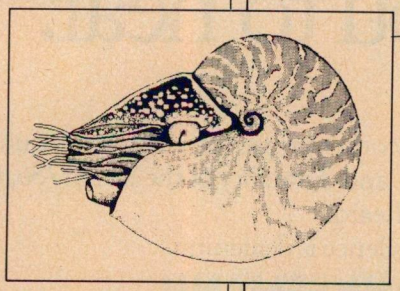
Another program, by Ron Waltner, alters the printer-dump portion of MousePaint (Version 1.0 or 1.1) to enable it to work with the Grappler or other intelligent printer-interface card. The first time we tried it, we damaged a disk. Follow Ron's advice and work on a backup disk! Also, be sure you provide the entire printer-control string. Michael's printer-interface card, the Grappler Plus, requires a Control-I G Control-M. Don't forget the Control-M (the same code the Return key generates); the dump won't work without it.

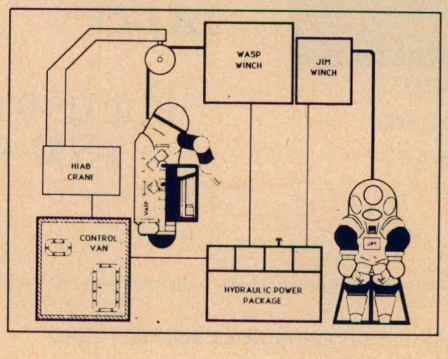
Other programs—for splicing two shape tables together, creating smoothly scrolling text on the hi-res screen, and so on—are also available. Like most shareware or programs in the public domain, MAUG programs may not be fully polished. Many are useful, however, and if you're a budding programmer, they can provide inspiration and insight.

For those of you who are interested in animation, files that professional animators have created with Movie Maker are available in the Family Computing data library. You don't need Movie Maker to run these files. CompuServe subscribers can run the animations by downloading two files: the "module," which is the program that runs the animations, and the animation file of your choice. Several animations are available on-line now, and more will appear each week.



MacPaint graphics before the addition of color





UPDATE: THE GRAPHICS DEPT.

In our May 1985 column, we wrote about The Graphics Department. Version 2 is now available, and one person we know who's been using it says it's "exquisite." Its maker, Sensible Software, is offering a selection of clip art for use with the program. If response is positive, the clip art will become available as a separate package. Mike MacDonald, author of The Graphics Department, sent us samples of the art and the new fonts. They're super.

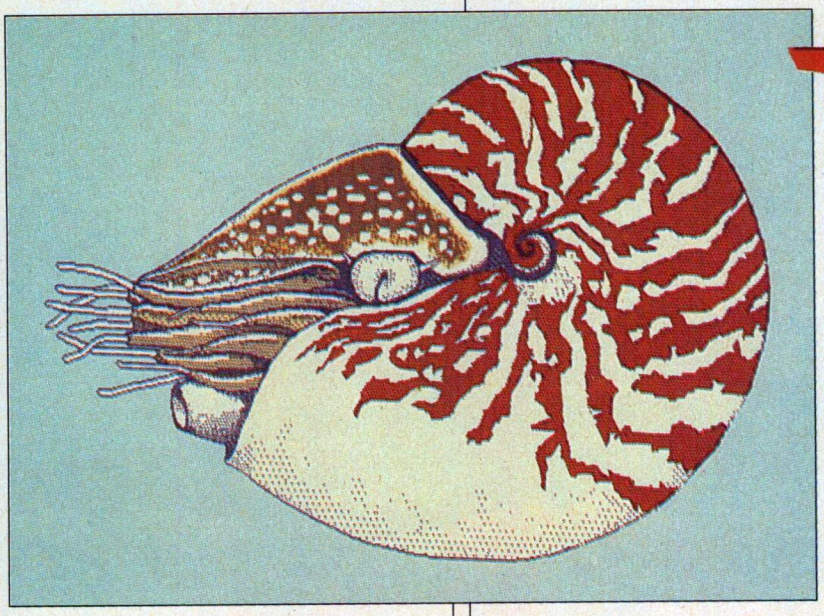
COLOR PRINTING

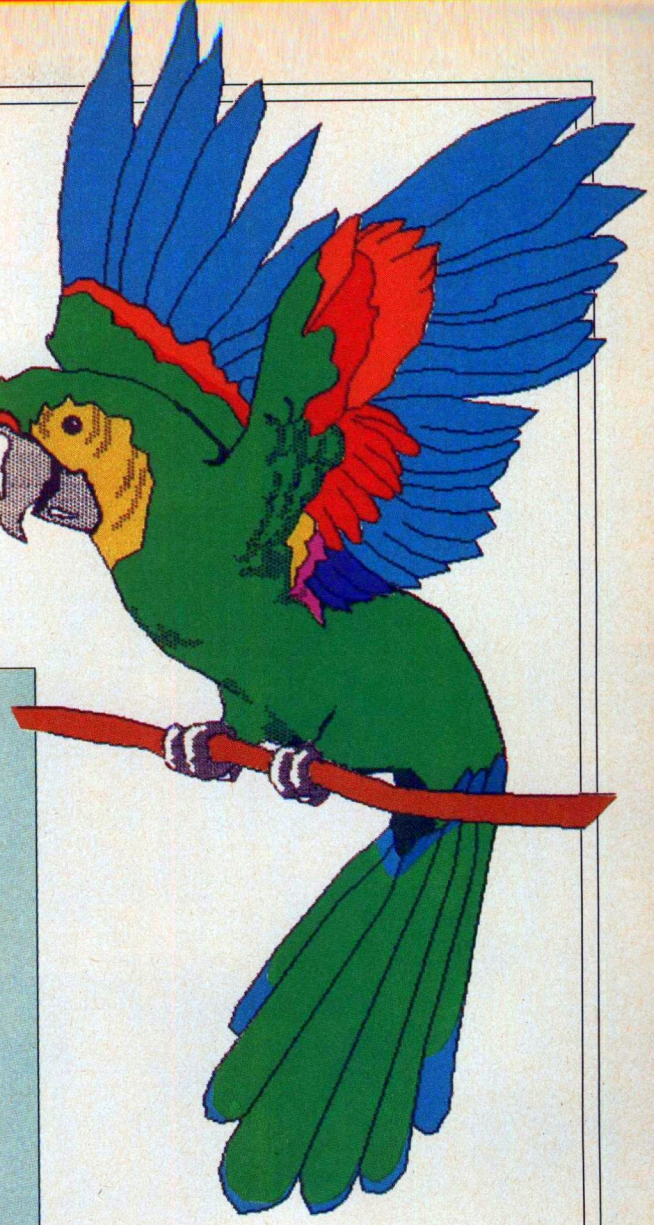
Epson printers have been workhorses for many Apple II users, and Epson's JX-80 is a color printer that many of us have been anxiously awaiting (see *A+*, August 1985, page 33). The JX-80 uses a horizontally banded ribbon with four colors: red, blue, yellow, and black. The printer overstrikes one color on another to create color mixes. For example, to create green, the printhead strikes the yellow band of the ribbon, backs up, and then strikes the blue band. The process is fasinating to watch, as the ribbon moves up and down to let the printhead wires get at the various colors. We tried some of the Apple II graphics programs that work with the JX-80 to produce printouts. Here are the results:

Graphics Exhibitor

Graphics Exhibitor, designed to enhance KoalaPainter and Micro Illustrator, functions with any type of Apple II high-resolution graphics. Graphics

MacPaint graphics after the addition of color with the Computer Graphics color Packet (all of these illustrations were reproduced from slides courtesy of Channel Productions)



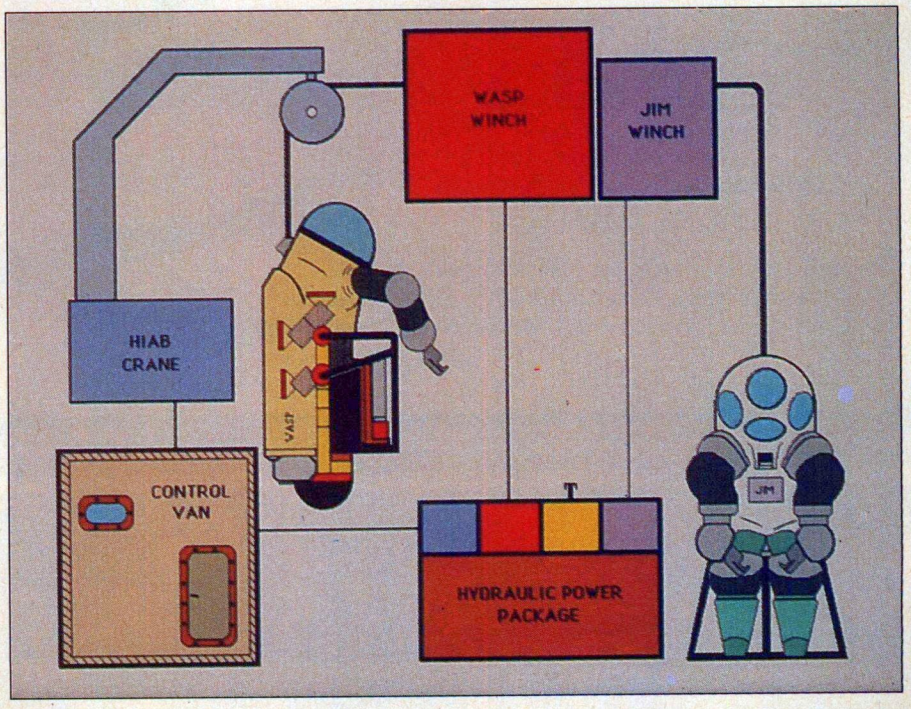


Exhibitor lets you load in graphics to add text, cut and paste, create a slide show, and/or print the graphic in black and white or color. You can select one of four print sizes, rotate the image 90°, position the printout on the page, and choose corrected aspect ratio (to avoid circles that look like ovals). Color Options lets you change the picture colors for the printout. Although the Apple displays only 6 colors, you can assign these colors to be any 6 of a set of 16 colors or shades of gray.

The color printouts are fine, and Color Options is a real plus, but we find the program's pull-up menus and icons more disconcerting than helpful.

The Printographer

The Printographer is still the graphics-dump program of our choice. The latest upgrade offers all the printing options of the original: independent horizontal and vertical magnification; picture positioning; text addition; horizontal, vertical, oval, and diamond



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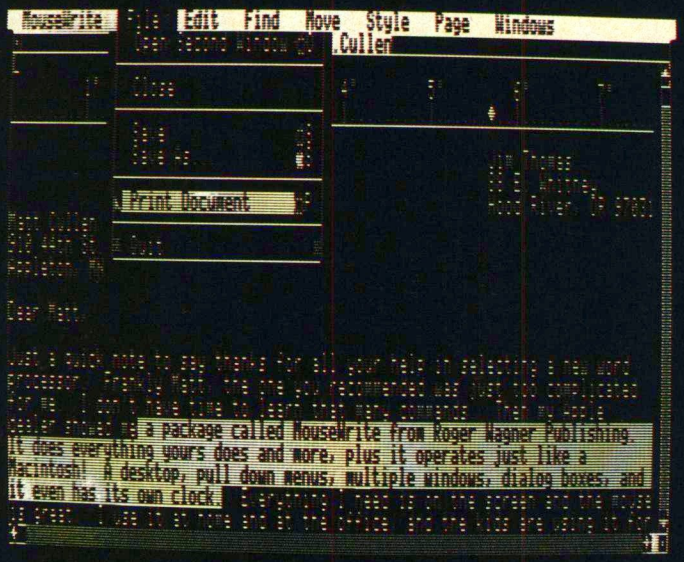

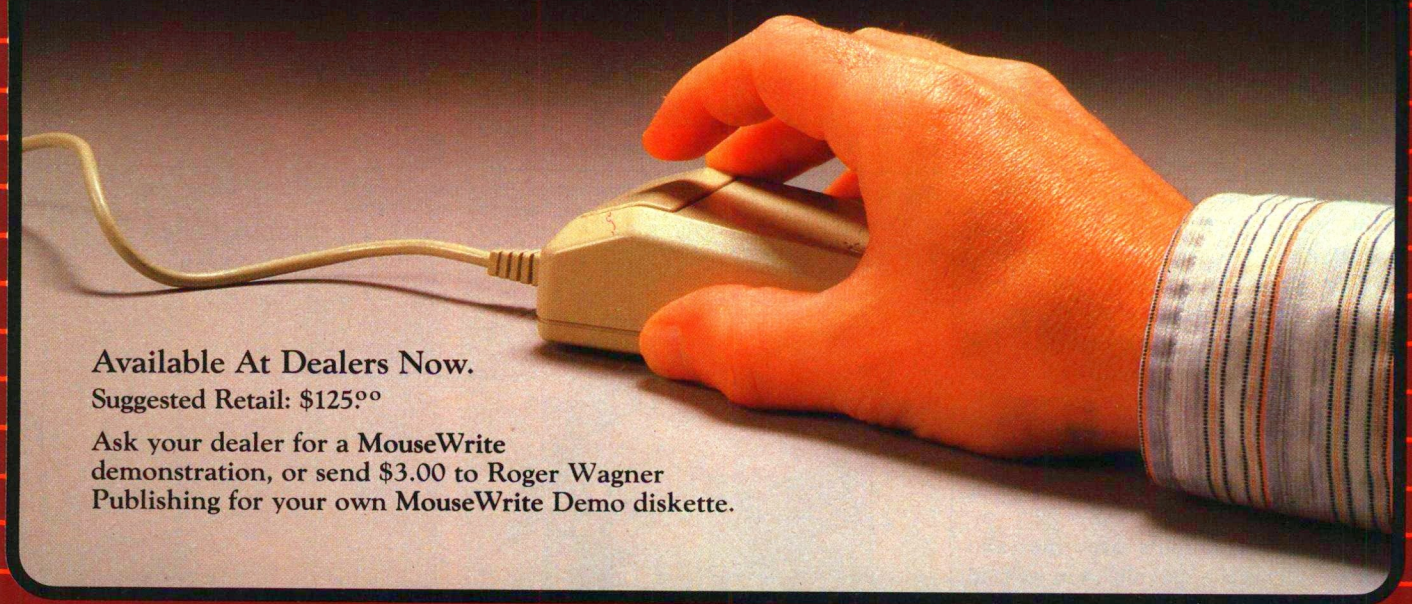

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cropping—plus color printing. The Printographer's printouts are denser and sharper than those of other programs, which makes the color pictures more vivid.

Dazzle Draw

At this writing, Dazzle Draw is the only program that dumps double-hi-res graphics in color. The graphics must be in Dazzle Draw format (see "Speaking of Graphics," July 1985). Besides selecting the printer and interface, you can't control the printout. If you select Print Picture from the Goodies menu, you get a magnified dump (8½ × 11-inch full-page-width, half-page-height) of your graphic. Double high resolution allows a wide and subtle range of colors, and the Epson JX-80 with Dazzle Draw translates them nicely.

Fontrix

With Fontrix 1.5, you can print your graphics and "graffiles" in color (see "Move Over Mac," *A+*, February 1985, pages 58–61). This version offers a few print options that weren't in the original, including 90° rotation, independent horizontal and vertical magnification, and cropping. As in Graphics Exhibitor, the color and gray-scale options give you a choice of colors and patterns, so that a given screen color can print as any color you choose.

By the way, Version 1.5 runs smoothly on the Apple IIc, as well as on all other Apples except the Macintosh.

Color It Adequate

Color mixing necessitates striking two or more colors for every dot, so color printing takes much longer than monochrome, and color ribbons don't last as long as black ones.

All the programs we looked at that worked with the Epson JX-80 performed adequately and, for the most part, comparably. We like the JX-80, although the colors it produces lack intensity. Don't expect your prints to have the vibrancy of a 35mm slide. For archival use and personal, rather than business, projects, the JX-80 can be practical and fun.

ALTERNATIVE COLOR OUTPUT

Since color-printer output may not be satisfactory for professional-quality color, you may be interested in Channel Productions' Computer Graphics Color Packet. With time, patience, and a little cutting skill, you can get photo-ready color graphics from your black-and-white printouts. This product's advertising aims primarily at the Macintosh, but it works with printed output from any computer.

The Packet consists of eight brilliantly colored, 6 × 9-inch, transparent, self-adhesive film sheets; a graphics knife for cutting the sheets; and an instruction guide. The colors are intense, but they're transparent enough that lines, patterns, and text show through.

The process is one that commercial graphic artists have been using successfully for years. After you print out your graphic, choose the film color that's appropriate for the area you want to color and cut out a section slightly larger than that area. Separate the film from its backing and place it on the area. Use the knife to cut the film along the outline of the shape you're adding color to, and peel off the excess. Repeat this procedure for each area you're coloring.

If you apply the colors to an overhead transparency, the graphic is ready for projection. If you apply them to a graphic on paper, you have several options. For written reports, fliers, and so on, you can have inexpensive color photocopies or more expensive color prints made. The finished product can also reproduce as a slide (see illustrations). The colors—yellow, orange, red, brown,

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magenta, blue, green, and violet—match printers' inks.

GYPSY ART

Magnum Software, creator of The Slide Show Magician for the Macintosh, has a new program called Gypsy. Gypsy turns your Mac into an electronic Ouija board. The entire package is impressive in many ways, but the reason we mention it here is that it contains the best graphics we've seen on the Mac so far.

Magnum Software is currently working on an upgrade of Slide Show Magician. From what we've heard, a good program will soon be great.

WHO IS VAHÉ GUZELIMIAN?

Vahé Guzelimian is the author of *Becoming a MacArtist*. The size and binding of this book are so unimpressive that you may very well overlook it on a shelf of slick, oversized publications, but it is one of the best books we've seen on Macintosh graphics. Bountifully illustrated, it thoroughly explores MacPaint and MacDraw, and the graphics are excellent.

That's it for now. +

▸ PRODUCT INFORMATION

Dazzle Draw
Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170
List Price: $49.95
Requires: Apple IIc or Revision B Apple IIe with Extended 80-Column Card with jumper connector, 128K RAM

Fontrix 1.5
Data Transforms
616 Washington Street, Suite 106
Denver, CO 80203
(303) 832-1501
List Price: $75
Requires: Apple II Plus, IIe, IIc, or III (in Emulation mode); 48K RAM; DOS 3.3, two disk drives

Graphics Exhibitor
Koala Technologies Corporation
3100 Patrick Henry Drive
Santa Clara, CA 95050
(408) 946-4483
List Price: $39.95
Requires: Apple IIc or Revision B Apple IIe with Extended 80-Column Card with jumper connector; 128K RAM

MousePaint
Apple Computer, Inc.
20525 Mariani Avenue
Cupertino, CA 95014
(408) 996-1010
List Price: Bundled with AppleMouse IIe, $149; bundled with AppleMouse IIc, $99
Requires: Apple IIc or II, II Plus, or IIe with AppleMouse II Card; AppleMouse II

Movie Maker
Interactive Picture Systems, Inc.
270 Park Avenue South
New York, NY 10010
(212) 475-7053
List Price: $49.95
Requires: Apple II Plus, IIe, or IIc; one disk drive

The Graphics Department, Version 2
Sensible Software, Inc.
24011 Seneca
Oak Park, MI 48237
(313) 399-8877
List Price: $124.95
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

The Printographer
Roger Wagner Publishing, Inc.
10761 Woodside Avenue
Suite E, P.O. Box 582
Santee, CA 92071
(619) 562-3670
List Price: $39.95
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

Computer Graphics Color Packet
Channel Productions
315½ West Pedregosa
Santa Barbara, CA 93101
(805) 569-0034
List Price: $15

Gypsy and **The Slide Show Magician**
Magnum Software
21115 Devonshire Street
Suite 337
Chatsworth, CA 91311
(818) 700-0510
List Price: Slide Show Magician, $59.95; Gypsy, $39.95
Require: Macintosh

Epson JX-80
Epson America, Inc.
2780 Lomita Blvd.
Torrance, CA 90505
(213) 539-9140
List Price: $699
Requires: parallel interface

Becoming a MacArtist
Vahé Guzelimian
Compute! Publications, Inc.
Greensboro, NC
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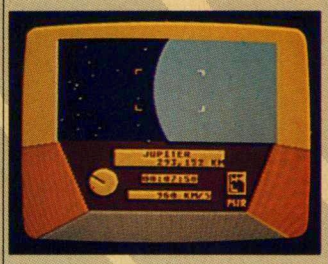


Astronomers from all over the world are turning state-of-the-art electronic instruments to the study of this most spectacular of all known comets.

ON THE TAIL OF HALLEY'S COMET

The last time Halley's orbit brought it close to Earth, "comet pills" guaranteed to ward off the evil effects of cometary vapors were big sellers. Gas masks also did a brisk business. And in Oklahoma, sheriff's deputies were said to have successfully stopped the sacrifice of a virgin.

But that was 1910. No such hysteria is likely to meet Halley's visit this time around. Instead, astronomers from all over the world are turning state-of-the-art electronic instruments to the study of this most spectacular of all known comets. Spacecraft from the Soviet Union, Japan, and Europe are making flybys, and the space shuttle, satellites, balloons, sounding rockets, and powerful telescopes will all gather data.

Modern-day entrepreneurs, like their turn-of-the-century counterparts, are doing a booming business, this time with Halleyscopes, lecture tours to the Southern Hemisphere, star maps, pins, and Edmund Halley T-shirts. Electronic information services are even providing coverage of it (see "Comet Communications" on page 141 of this issue). As the Earth's rendezvous with the comet fast approaches (Halley will be closest to the Earth in April 1986), the feverish pitch is affecting even the most unenlightened stargazers who have trouble distinguishing Orion from the Big Dipper.

Why do comets generate so much interest? For one, they have a reputation as harbingers of catastrophe. Some people believe that a cometary collision with Earth was responsible for the extinction of the dinosaurs. The fall of Jerusalem, the death of a Roman emperor, and the Norman conquest of England all coincided with the appearance of Halley's comet.

The comet's attraction also lies in the mystery surrounding it. Scientists are unsure of its origins (although many believe that the comet comprises primordial material from the birth of the solar system). More intriguing, scientists realize that the behavior of a comet may be completely unpredictable. Comets have been known to break in two, collide with the sun, and even completely die out. Whatever happens to Halley's comet in the next few months, it will be a solar event worth a second look.

For neophyte astronomers, spotting this mass of ice and dust in the night sky may prove elusive. Though a comet's tail can be up to 100 million miles long, its nucleus is extremely small (Halley's is estimated to measure only five kilometers in diameter). At its closest, Halley's comet will be much further away than

ADRIAN DAY

it was in 1910 and only about one fourth the apparent length for earthbound observers. Furthermore, each night the comet's position relative to the constellations will change.

Knowing about the comet and where to find it can make a critical difference in your enjoyment of this once-in-a-lifetime event. One sure way of getting into the comet spirit and learning about its path is by exploring some of the newly developed comet software available to Apple owners. We'll look at three different programs.

Comet Crunching

Let's say you're planning a mountaintop retreat on a certain weekend in March 1986. Will Halley's comet be visible as you take an after-dinner stroll? With a program called Halley's Comet developed by astronomer Eric Burgess (author of Celestial BASIC), you can find out in advance. All you have to know is the planned location's latitude and longitude.

If the comet is visible, the program points you toward the correct horizon for viewing the comet and plots what the sky will look like that night, complete with the expected size and length of the comet's tail and where it will be in the sky in relation to any visible planets, the moon, and the brightest stars. It also tells you whether the moon is in a phase that will make viewing difficult. If the comet will be below the horizon on the date you select, the program tells you when it will rise and set.

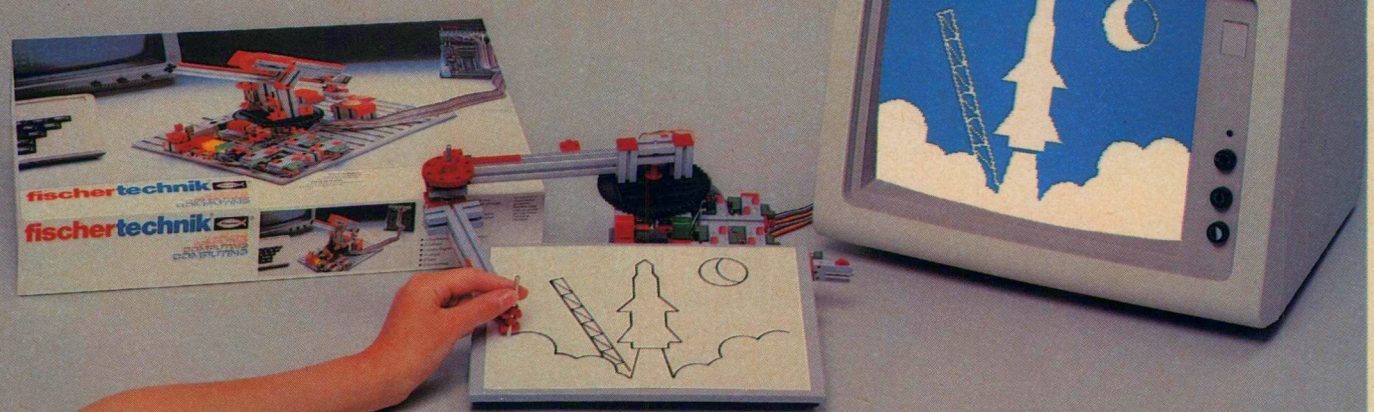
One menu option allows you to plot the path of the comet through the constellations for the next few months. Another shows the path of the comet through the solar system for any given day or series of days and tells the comet's distance from the sun and the Earth. If you run this program for 1910, you can see how the Earth passed through the comet's tail. Run the program for 1066, and you can see how the comet came close enough to the Earth to cause the cometary display memorialized in the Bayeuz Tapestry.

In all of the menu options, the on-screen graphics are rather crude. Earth appears as a script *e*, the sun as an *S*. Often not enough stars are displayed to make constellation identification possible. Although the documentation lacks polish, stargazers of all stripes will find the extra effort required to understand the program worthwhile. Novices can skip over the parts about such topics as the "argument of the perihelion, in degrees measured from the ascending node" and leave them and the program's vast data file to more serious astronomers. Programmer/astronomers will be delighted to learn that they can customize the program to their own needs.

Comet Literacy

In contrast to the rather primitive high-resolution graphics in Halley's Comet, Millet's Learn About series on Halley's comet for the Macintosh makes the solar system come alive. Like all well-designed programs, it

Give your computer a robot to play with.



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For more information on the fischertechnik Robotic Computing Kit, contact your nearest fischertechnik dealer or call 201-227-9283. fischer America, Inc., 175 Route 46 West, Fairfield, NJ 07006.

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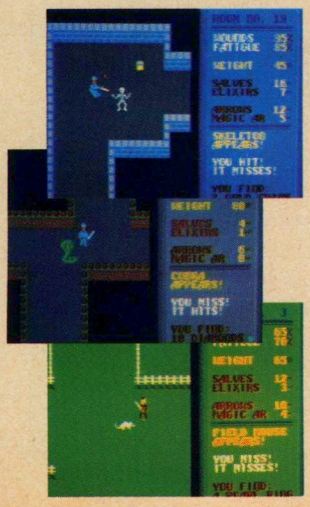

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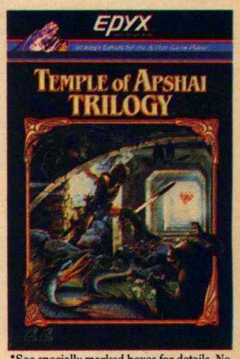

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THAT'S entertainment

has a logical structure that makes the documentation almost superfluous, yet the documentation itself is as clear as a bell.

Not nearly as ambitious as Halley's Comet, this tutorial introduces the planets, the sun, and Halley's comet and shows the motion of the planets and comet rotating around the sun. The last choice on the menu is an interactive test program. Intended for the educational market, this software holds little appeal for armchair astronomers.

Encounters in the Cosmos

Learning about Halley's comet need not be tedious, however. In the tradition of some of the finest adventure games, Mindscapes' Tom Snyder Productions has come up with a challenging and addicting program, The Halley Project, that teaches you about the solar system and the comet while you're having fun.

To start, you get a dossier of classified documents and a cassette tape that, in "Mission Impossible" fashion, challenges you to complete ten missions, each more difficult than the last. Sometimes you're told exactly where to go, and sometimes the destination is transmitted only with cryptic clues, but each mission always ends back on Halley's comet.

Few star pilots will be able to complete the missions without some intelligence-gathering activity at their local interplanetary library. Logical reasoning and some math skills may also be necessary. For example, your mission might involve finding a moon you've never heard of that is so small you can't pick it up on your radar, even from the planet it is orbiting.

The authors have made every attempt to simulate conditions in the solar system realistically. This authenticity allows you to discover or apply knowledge and understanding of factors such as gravity, atmospheric conditions, orbits, and eclipses without even being aware of it.

Joan Westley

Halley's Comet
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Sebastopol, CA 95472
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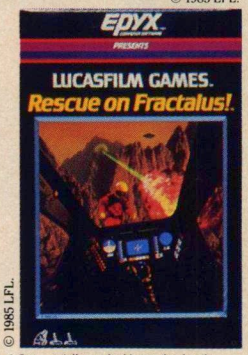

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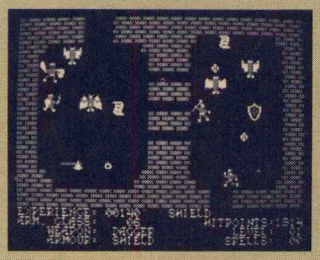
MONSTERS AND CATACOMBS

A question, astute entertainment mavens: What do you get when you cross Ali Baba, John Wayne, and Indiana Jones?

One of two answers, shrewd gaming gurus: a magic Arab charging over the sands, shooting foes as he searches for a priceless artifact, or an adventure arcade game from Penguin Software called Sword of Kadash.

The object of this game is to wander around the catacombs of the Fortress of the Dragon in search of the enchanted Sword of Kadash. You enter the dungeon with a certain number of hit points, a dagger, and a shield. Along the way, you must explore unknown passageways, avoid treacherous traps, find secret doors, and battle a multitude of monsters. The sheer size of the dungeon (more than 200 rooms) presents a formidable challenge.



Not everything in the dungeon is evil. The corridors and rooms hold weapons, armor, and treasures. Although you start with only a dagger, you quickly trade up to more potent weapons such as an ax and a magic sword. Likewise, you trade in your shield for magic rings of protection. Finding treasures, killing monsters, and solving puzzles give you experience points. A certain number of experience points increases your hit points (making you tougher to kill) and your fighting ability.

Just to keep you honest, some items are cursed. Various treasures can undo curses, give you magic spells that temporarily scare off monsters, and restore hit points.

Berserk Hybrid

So far, so good: It's a typical hack-and-slash adventure. You use a two-button joystick to guide your character through the catacombs. Button 1 releases a spell. Button 0 "swings" your sword.

Avoid hand-to-hand combat at all costs. You see, a monster inflicts damage on you by touching you. The longer a monster remains in contact with your character, the more hit points you lose. When you reach zero hit points, you die.

On the other hand, you inflict damage on a monster from afar. Although armed with a dagger, sword, or other nonprojectile weapon, you kill a monster by "shooting darts" across the screen. Remember John Wayne charging across the sands of Iwo Jima, blazing away with a submachine gun? Place him underground in an Arabic setting, and you have the combat system of Sword of Kadash. No matter how hard I tried to envision being a daring swordsman, the darts and machine-gun sounds kept placing me in modern-day combat.

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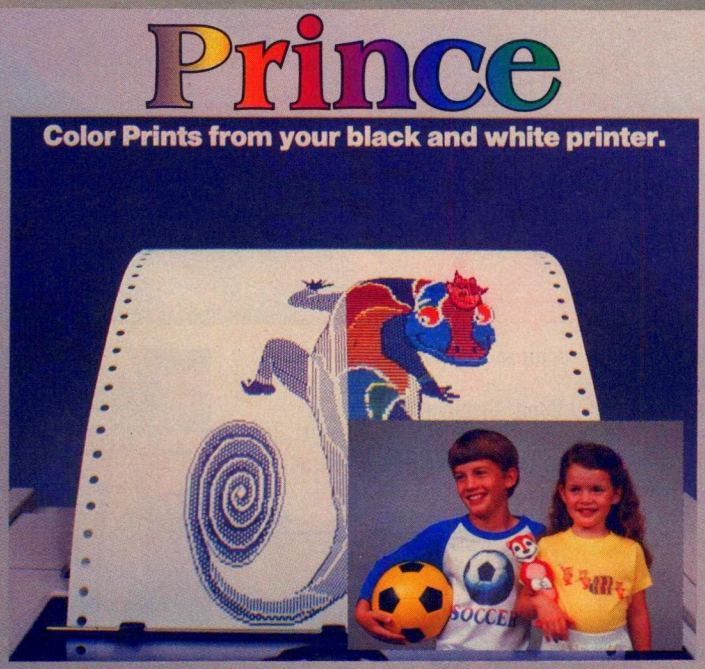

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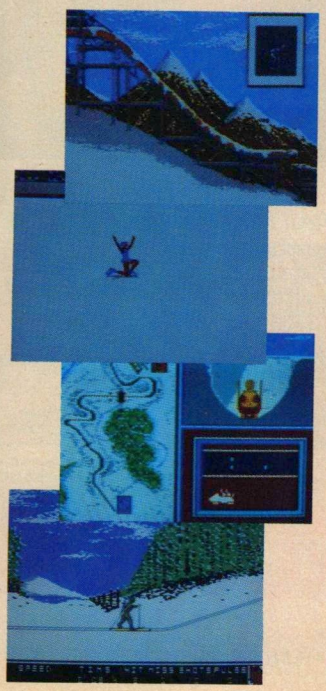

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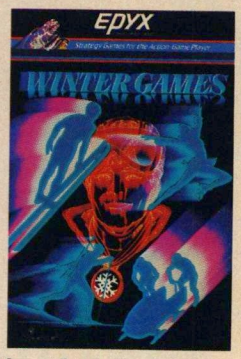

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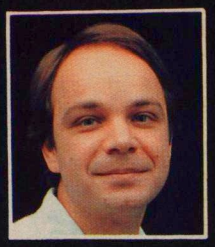

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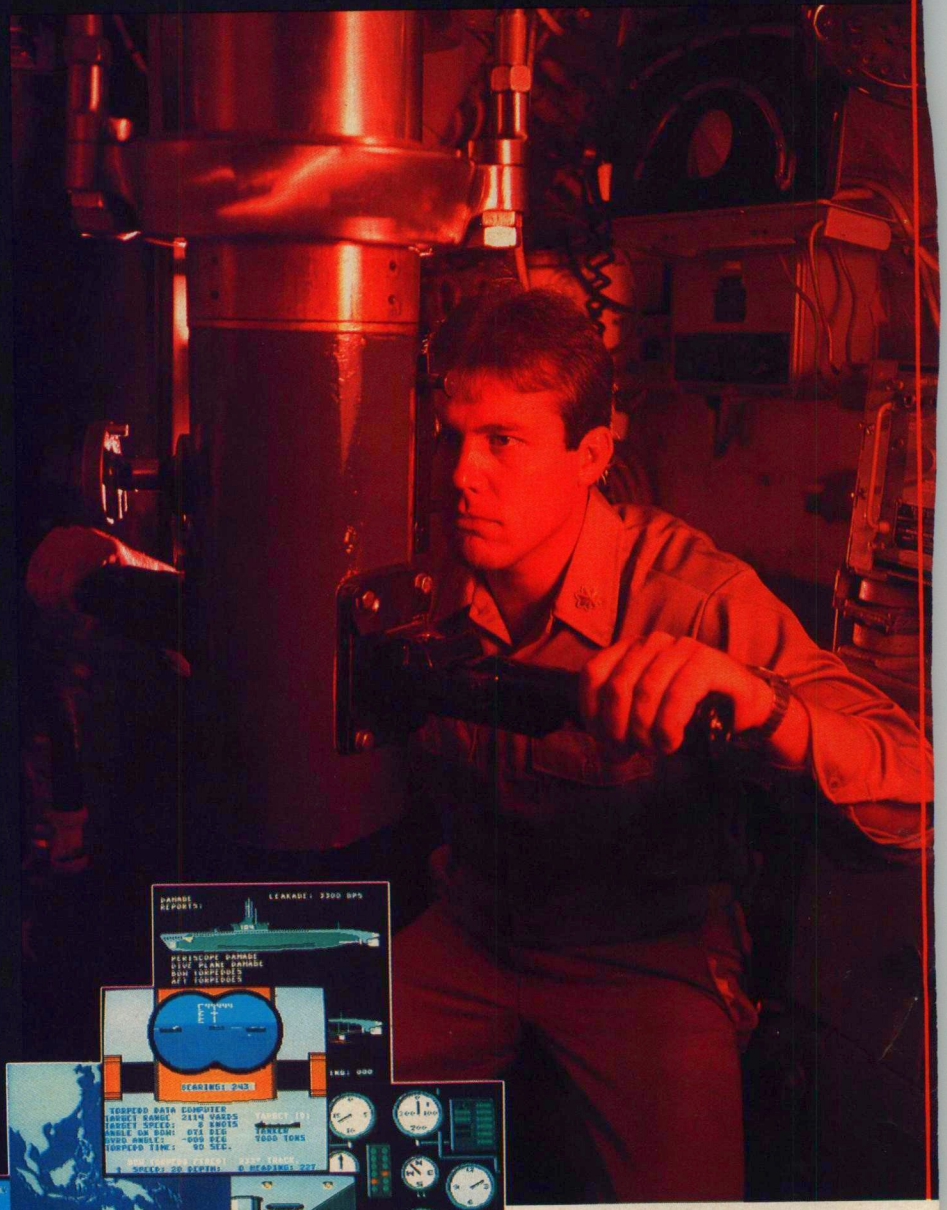

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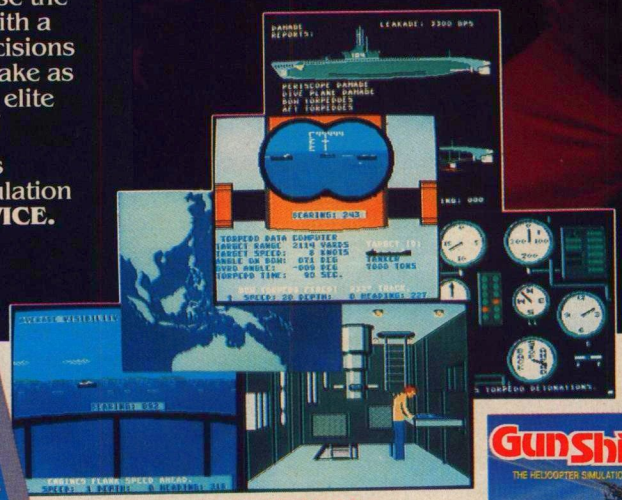

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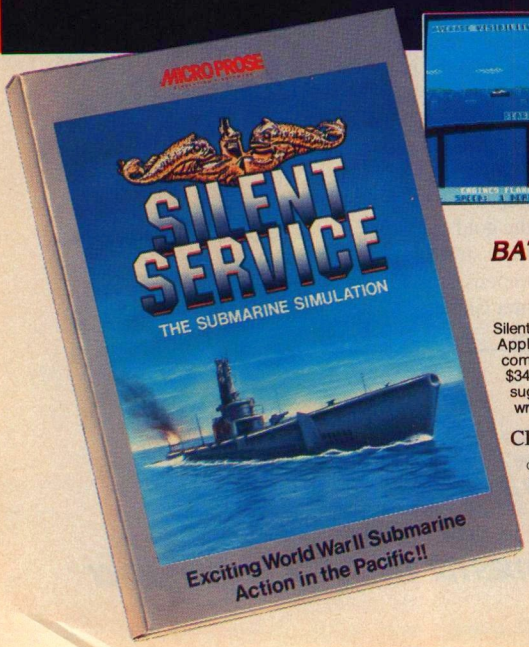

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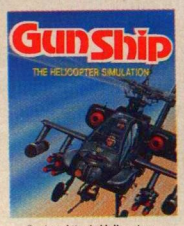

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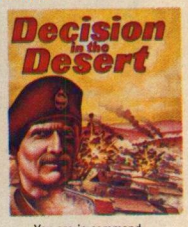

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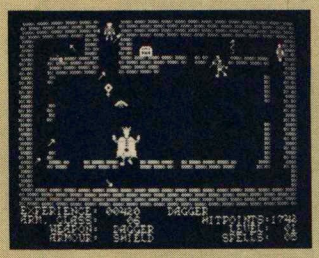
I can forgive the combat system, mostly because it works. A monster here and there pierces the stream of darts and stabs, stings, or bites you. Traps also chip away at your hit points, and eventually you succumb to the evils of the Fortress. After death, you are resurrected (with no experience points and loss of all treasures, weapons, and armor) in the same room in which you died. You can come back to life four times per game.

Herein lies my main criticism. To start the game, you must create a character disk with a blank disk. The process takes a minute or two with two disk drives but takes what seems like an eternity with one disk drive. The manual notes "If you die . . . you will have to make a new copy," which means you must create a new character disk for *each* game. In other words, die five times and it's back to the old disk drives.

This situation is simply intolerable. The game, even at its easiest of three settings, is quite challenging. As you learn the layout of the catacombs and the patterns of the monsters' movement, you tend to explore deeper and deeper into the dungeon before expiring. You quickly figure out that ambushing monsters is preferable to charging into the middle of a roomful of them. Nevertheless, you will run through all five lives, and creating a new character disk certainly taxes your patience.

Sword of Kadash is a lot of fun, even if you do feel



more like John Wayne than Ali Baba. Since creating character disks is no fun, however, owners of one-drive systems should stay away from this game. Owners of two-drive systems might want to take a look at Sword of Kadash. The concept is interesting, the game challenging and mildly addictive, and the overall effect entertaining.

Russ Lockwood

Sword of Kadash
Penguin Software
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Geneva, IL 60134
(312) 232-1984
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Requires: Apple II, II Plus, IIe, or IIc; one disk drive; one joystick

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I think Willy Byte in the Digital Dimension is supposed to be an "educational" game. I think.

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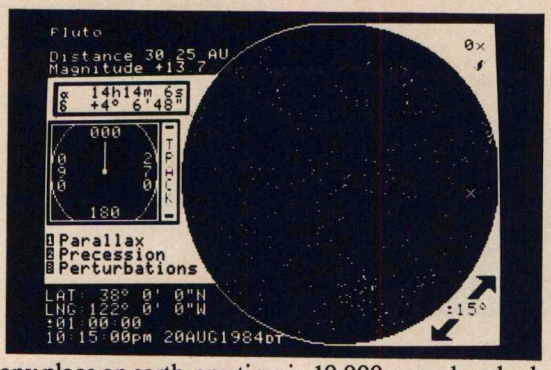

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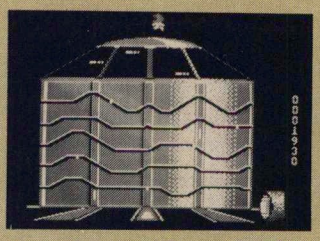
THAT'S entertainment



central processing unit of the computer. Here, the little silverheaded hero starts by building a flowchart of tasks to perform, choosing the order in which he/you will visit the various parts of the computer—the clock, the disk drive, the keyboard, the memory, the power supply, or just an overall system map.

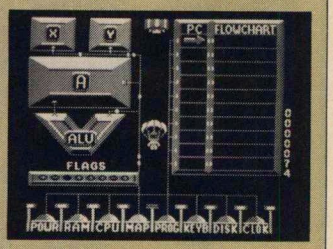
Each of these separate parts of the computer is represented by a different arcade-action problem. For instance, in the keyboard simulation, you have to jump on the key switch in the middle of the circuit board and then push all eight bits of an eight-bit code to the bottom of the circuit board (one at a time), while watching out for the cross fire of the dreaded static fireballs. If you read the instruction manual (and who *really* reads *them* any more?), then you will find a complete description of just how this game represents what is actually happening in a real live keyboard.

The single byte you have just input is now sent to the RAM, the random-access memory. Willy's job—your job actually—is to pull all eight bits of the byte into memory as fast as you can, before Hex Luthor's heat lamp melts through the heat sink. After you've stored a byte, you can go back to the keyboard and input a new byte. Do this five times and you can spell out the name WILLY.

Now you can go to the disk drive and try to save these bytes onto the disk. You do this by jumping up on the read/write head and balancing there while it writes your data to disk. Do not try this in real life.

Now you can go to the power supply and play a jumping game. Every time you jump onto a cylinder top, you turn it either on or off, depending on whether it was off or on when you jumped onto it. While you're jumping, you have to avoid lightning bolts of electricity and orange fireballs of static. If you can grab Willy's toolbox whenever it passes by, you'll be invulnerable for five seconds.

Finally there's the clock, which sometimes goes haywire. You have to climb up the clock and jump up and down on the top to reset it, but you have to avoid the clock's pulses while you're



climbing and jumping—so it's kind of like playing Donkey Kong, only without the gorilla.

When you finish the game, you get an efficiency rating, based on your time, your efficiency of movement, the integrity of your data, and the power and clock status at the end of the game. If you are one of the top eight players, you can write your name in the hall of fame.

This game's animation is very nice. Willy Byte seems to have a perpetually quizzical expression and a persevering personality. The game is also enhanced for

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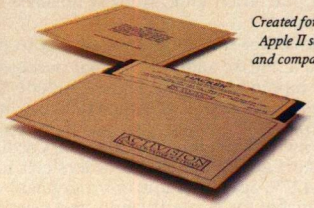
"An open screen says 'logon please.' That's it, no instructions."
—Technology Notebook/Gannett News Service

"Just like in real life, there are no rules, no clues, no instructions."
—David Greising/Technology Memo

What more can we say? Well, someone as clever and smart as you certainly wouldn't want any hints, right? So all we'll say is it was created by legendary designer, Steve Cartwright.



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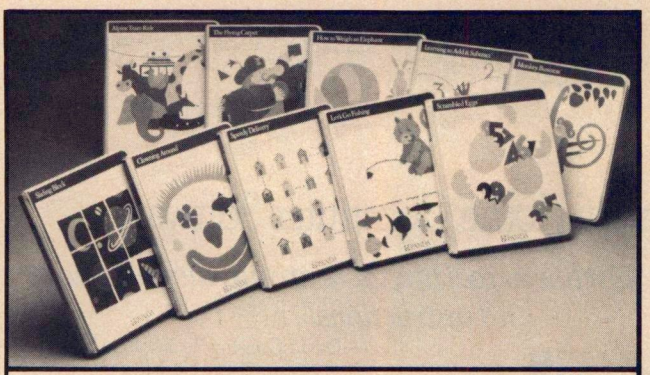

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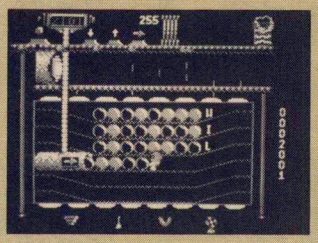
the Mockingboard music and speech system, which adds to its overall playability. Whoever designed the sound, music, and speech effects for the game did a



terrific job. It's fun to go to all the different parts of the game just to hear all the variations on SPLAT, ZAP, PLINK, BOOP, and OUCH. Without the Mockingboard, in fact, the game seems incomplete.

I suspect that most people are going to play this game because they think it's fun to play and not because they are interested in learning how a byte moves from the keyboard to the disk. There are faster ways to learn what's going on inside a computer. But I am sure that once you do understand the final goal of the game—and fight your way through to it a few times—you'll never take your computer for granted again. You'll have had a personal experience of just how much work it takes to input a byte of data, store it in RAM, and write it to disk. Frankly, it's *exhausting.*

David Gerrold

Willy Byte in the Digital Dimension
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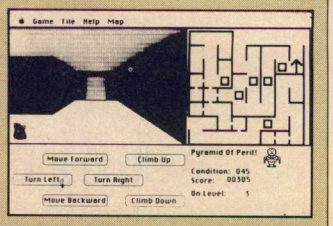
IDOL PLEASURES IN EGYPT

Egyptologists need not travel thousands of hot and dusty miles to explore the intricate chambers of the great pyramids. Aegis Development's new game Pyramid of Peril enables any Mac owner to descend deep into the jewel-filled tomb of Prince Mohmadine and search for the valuable Mohmadine Idol. Of course, as experienced archaeologists well know, such expeditions are dangerous and involve many unexpected hazards (just ask Indiana Jones!).

Of all the groups that have combed the pyramid hoping to recover the prized idol, nobody has resurfaced from its depths to tell of his adventures. To find the idol, you must systematically search every antechamber



of the six-level pyramid. You control movement by clicking on the forward, backward, left, or right options. You can change floors at any time.

At each level, you can recover precious items by using the mouse to drag them into your treasure bag. Each item has a point value, and you need a minimum of 2000 points to find the idol. A high score will also keep you healthy and alert. Your physical condition is constantly monitored and can either improve or deteriorate, depending on how quickly you kill the hostile forces (snakes, spiders, spirits, and more) and how

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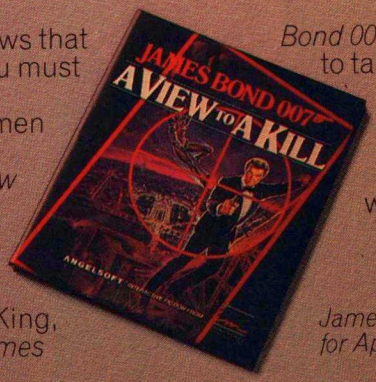

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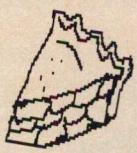

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much treasure is in your treasure bag.

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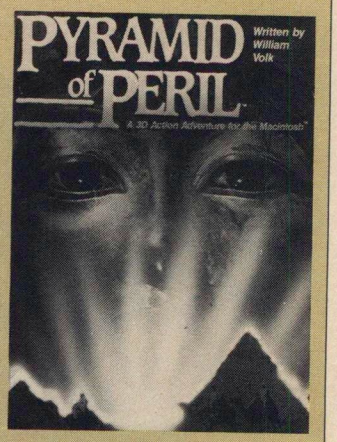
Don't worry about getting lost. As you move through the chambers, a mazelike map automatically marks your location. This floor plan traces the areas of the pyramid that you have explored. It is stored in memory, and you can consult it at any point.

The game is easy to play. You can pull the Help menu down at any time. The three-dimensional graphics bring the corridors of the pyramid to life, and the icons depicting jewels, messages, and spirits are elaborate. Unfortunately, the sound effects are limited to low clicking noises mimicking footsteps, with an occasional high-pitched screech when the adverse elements appear.

The game quickly becomes tedious, especially at the lower, more intricate, levels of the tomb—a greater variety of noises and music would liven things up. I also found the pace of the game too slow.

These shortcomings considered, Pyramid of Peril is still entertaining. Of course, I would rather undertake the journey to Egypt and explore the real thing—even in the face of the many dangers that await me.

Bertrand Valdman



Pyramid of Peril
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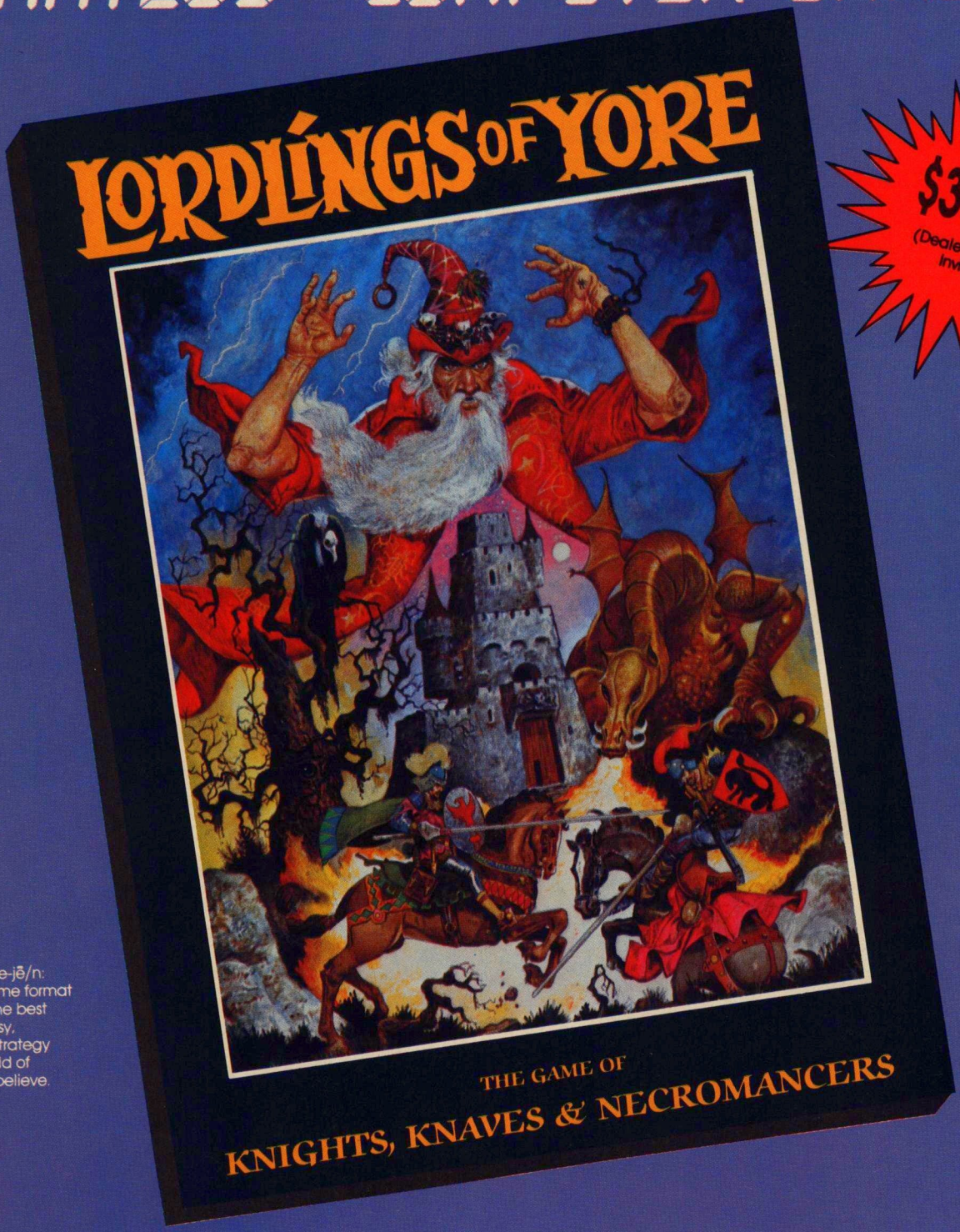

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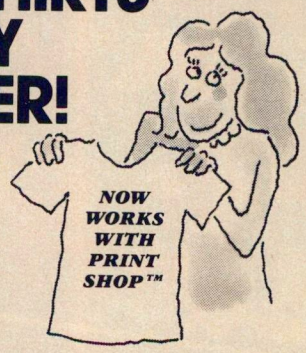

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playing Ghostbusters, a movie-inspired Activision game, designed by David (Pitfall) Crane. This program weds typical adventure strategy with arcade shooting dexterity. The result of this particular merger is nice but wins no cigar.

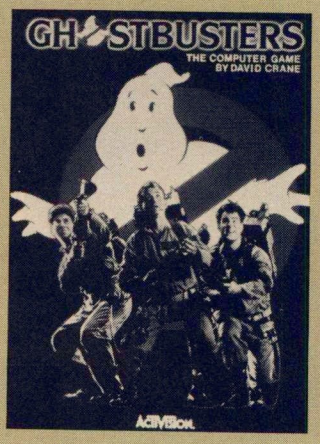
To start the game, you choose your favorite ghost-hunting vehicle (there are four in all) and spend your initial outlay of $10,000 to purchase sensors and traps for your trip. Now, you switch to the main screen, where you see a bird's-eye view of the naked (and, yes, haunted) city. Your next step: patrol the streets in your jury-rigged auto, chasing ghoulsome pesties—à la Pac-Man.

When you touch a ghost (called a Roamer), it freezes to a halt. You must stop the spooks from entering the Temple of Zuul, because once there, they start grouping to form Marshmallow Man—and he ain't no cream puff, believe me.

When you approach a spook-infested house, you enter by pointing the joystick and pressing the fire button. (This game requires a joystick, a fact not mentioned on the box cover.) Before you can see the close-up view of the house, however, you must travel within the confines of a completely separate road screen and vacuum up the previously frozen Roamers. The road screen lasts for about half a minute, and you can't sidestep it to go directly to the house. Often you'd rather not use this route (indeed, you may not have outfitted your vehicle for vacuuming), but you have no choice.

Once at the house, your men must leave their car and operate the Ghost Trap. To snag a Slimer, you must move fast. Capturing Slimers, Roamers, and their brethren increases your credit account. At any time during the game—if you're economically solvent—you can return to GHQ for more men or supplies.

If you can successfully penetrate the Temple of Zuul, outlasting Evil and earning enough capital, you win. But it ain't easy! You gotta stay with it, learn the ropes.



If you enjoy fine graphics and absolutely adore shoot-'em-up maze adventures, you should like Ghostbusters. Personally, I found it too "formula" and tedious—especially the tiresome, force-fed road screen. Players "haunted" by the adventure bug might let this critter crawl a path into their hearts, though.

As for me, I'm not afraid of *not* fighting no ghosts.

John DiPrete

Ghostbusters
Activision, Inc.
P.O. Box 7287
Mountain View, CA 94039
(800) 227-9759
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Local villagers can help, but beware—the wrong approach will frighten them away, leaving you in a world where starvation looms ever-present. Wise use of magical charms, prayers and fireballs is essential in reaching the final confrontation with the treacherous Warlord—where victory brings recovery of the long-sought Orb of Celestial Harmony. Good luck!

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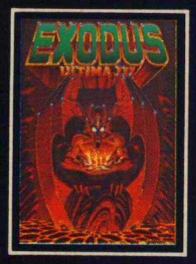
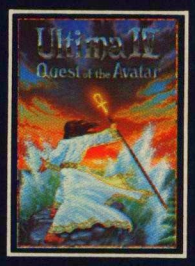
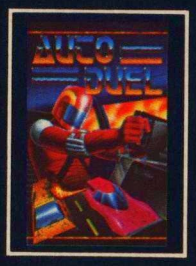


ULTIMA III™ takes you on an incredible fantasy role-playing journey through monster-plagued Sosaria in search of the elusive Exodus.



ULTIMA IV™ is the long-awaited sequel to Ultima™ III. The Quest of the Avatar is a quest to the final frontier—the self.



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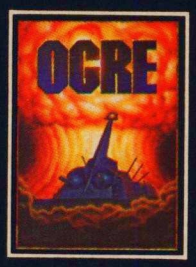

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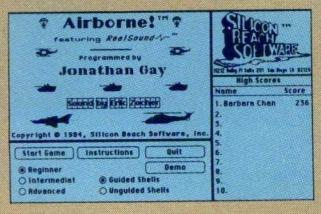
DEATH FROM ABOVE

You stand alone in an exposed bunker at the foot of the hill. You, the last surviving defender of this desolate outpost, waiting, waiting, for the inevitable onslaught from the skies. Your ack-ack gun is ready, the mortar is primed, and there it is—the far off chopping sound of the lead helicopter. You aim, fire, and witness the destruction of the first of the enemy craft. But there are more, and soon the skies are filled with helicopters dropping paratroopers. A troop transport flies by, delivering more troops and tanks. A large helicopter lands and delivers even



more troops. You are now alternating between the mortar and the ack-ack gun so quickly that you may get confused about whom you are firing what at.

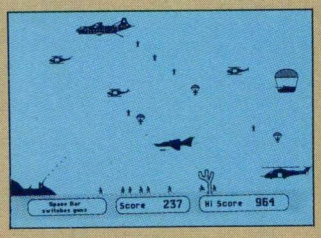
Suddenly there is a lull, an ominous respite, seconds of empty sky, and then with a roar a jet fighter swoops out of nowhere and fires an air-to-ground missile. Unless you are prepared and firing before you hear the jet, you are now ashes, and a sign appears in the heavens saying click to continue. If you were prepared and did shoot down the jet or the missile, congratulations. Get ready for a more furious second wave.

Welcome to Airborne!, an arcade-style shoot-'em-up game that takes full advantage of the Macintosh's sound, animation, and mouse-control capabilities. Some of the features represent breakthroughs in Mac programming. For example, the Hello screen is accompanied by Wagner's "The Ride of the Valkyries." In a trademarked process called RealSound, a mainframe computer digitally encodes an analog recording and transfers it to disk.

The result takes up a lot of disk space, but it's worth it. The sound produced is polyphonic and realistic. Because of the difference in the amount of RAM available in the 128K and 512K versions, the former plays for 8 seconds and the latter for 20 seconds. Because of the Mac's small speaker, it sounds a lot like a symphony performing in a matchbox. Running a cable from the audio port on the back of the Macintosh into a stereo speaker produces a full-bodied sound. Although the music is not in stereo and definitely not of standard record quality, this development clearly points in a new direction in computer sound generation.

The game is complex on paper, but novices should be able to grasp it without consulting the documentation. You are in the lower left corner of the screen, slightly above a plain that extends to the right corner. A cactus stands about two thirds of the way down the screen from you.

You have a gun that shoots guided or nonguided shells at anything in the air and a mortar with limited aerial range, capable of hitting anything on the ground if properly directed. You control both weapons with the mouse. To aim the gun and direct the shells, you must move the mouse in an arc; to control the mortar, you move the mouse laterally. You fire by clicking the button and can produce continuous fire by holding the button down. To switch from gun to mortar, you must press the space bar.



The enemy comprises an imposing aerial armada: helicopters, troop transports, jets. Of all of these, only the jets attack directly; the copters and transports cruise lazily by like ducks at a shooting gallery, but even though they don't perform evasive maneuvers, they can be devilishly hard to hit. Their basic function in the game is to deliver paratroops and tanks to the plain to attack your position. Once enough of the troops (the number of troops necessary to attack diminishes as you go to higher levels) lands, the assault begins. Once that happens, you have to be skillful and fast to survive, especially if a tank manages to land. Tip: Try to keep the paratroopers as far behind the cactus as possible.

Scoring is a complicated matter. You get points for everything you shoot down, blow up, or otherwise destroy, but at the same time you lose a point for every shot you fire.

Airborne! is destined for the software hall of fame as one of the most fast-paced action games of its time. Even the most advanced arcade-game players will have their hands full the first time around. It has a cult following that includes some of the hottest programmers in the country, and it will probably serve as the model for many new games in the future. For its price, it is probably the best game in its genre on the market.

Ken Goehner

Airborne!
Silicon Beach Software, Inc.
11212 Dolby Place
Suite 201
San Diego, CA 92126
List Price: $39.95
Requires: Macintosh

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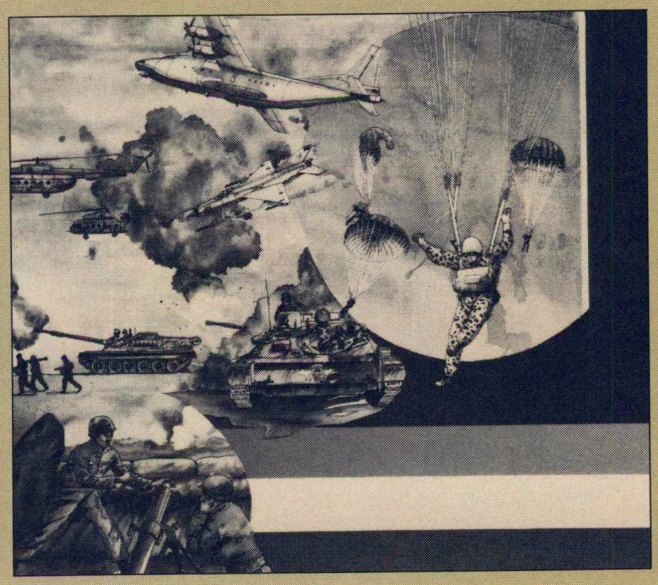

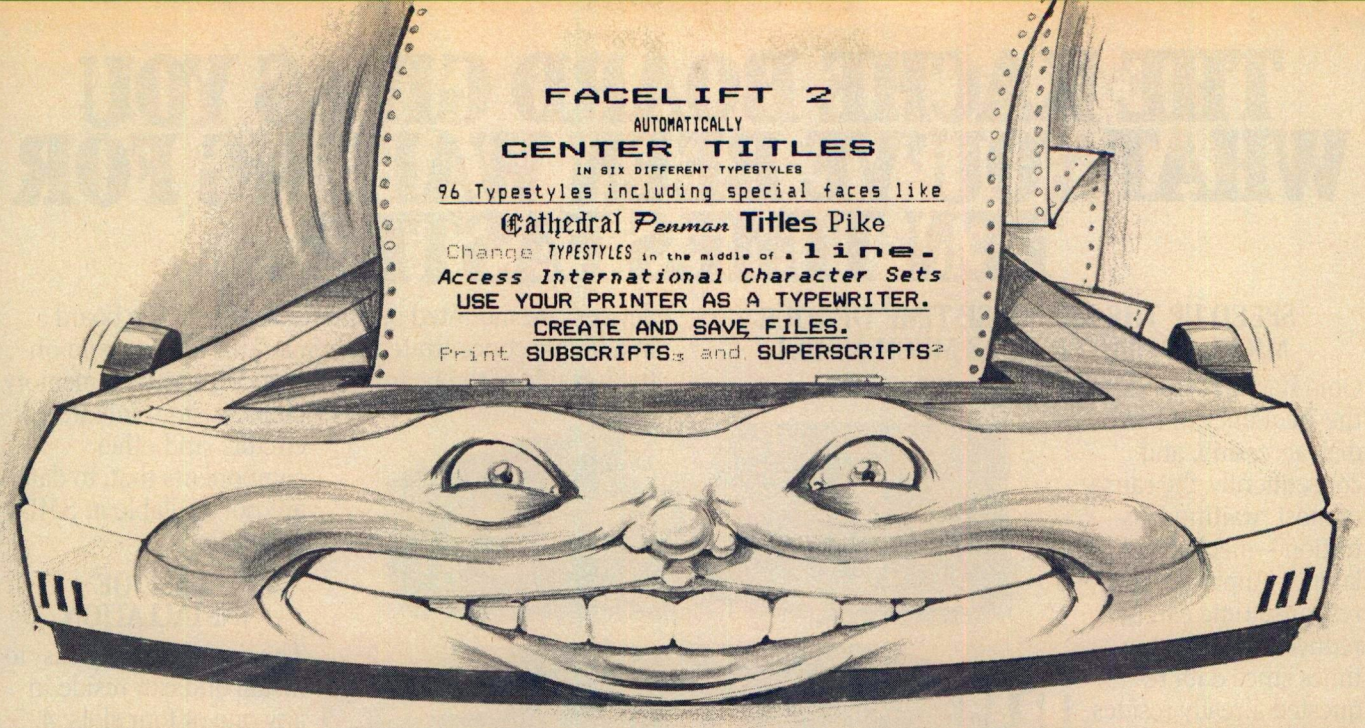

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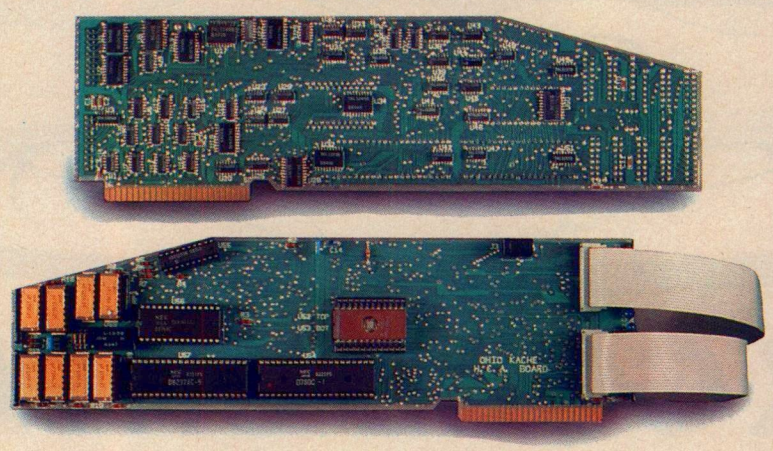

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The functionality and intelligence of the 11" x 3¼" Kache Board is made possible by the technology of Surface Mounted Devices (SMD's). SMD's, tiny integrated circuits a fraction of the size and weight of conventional devices, are mounted on the underside of the board in a highly concentrated schema. This allows room on the top side of the board for the microprocessor, memory chips, custom integrated circuits and other components that, to date, are not available in SMD proportions.

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The Kache Board is easy to install and can reside in any one of four slots: 4, 5, 6 or 7. In addition, a cable is provided for ease of installation to your 50 pin SCSI disk connection. The self-contained power source plugs into the Kache Board and relays power from any standard 110 volt electrical outlet.

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The Kache Board is available from Ohio Kache Systems (OKS) on a direct mail basis only. A rigorous 48 hours of testing is completed on every unit prior to shipment. Nonetheless, Ohio Kache Systems offers a 90 day warranty on all components and labor as well as a 30 day trial period. If the Kache Board doesn't perform as we say it will, return it to us for a full refund.

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For further information on the Kache Board, Ohio Kache Systems Corp., or the compatibility of your hard disk drive, please contact us at (513) 746-9160.

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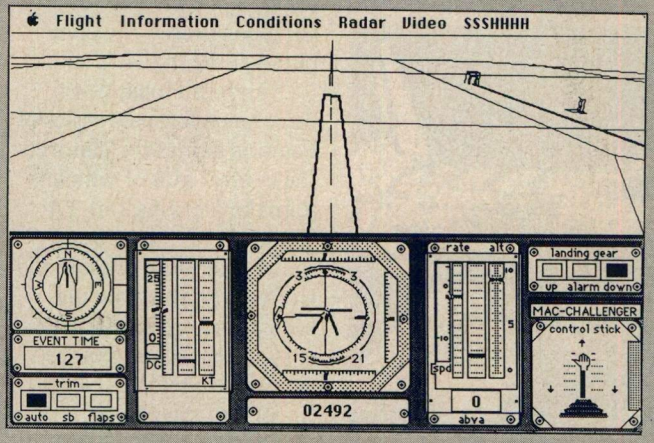
Mac Challenger is a flight simulator that puts you in the driver's seat of a space shuttle falling through the sky, ready to be brought in for a touchdown. Though the shuttle may seem to have the aerodynamic qualities of a steam iron and the landing pattern of a wounded pelican, it is a highly sophisticated and responsive flying machine. Mac Challenger emulates the experience of deorbiting, with your choice of gliding in to Edwards Air Force Base in California or the Kennedy Space Center in Florida.

You can see the planet rushing up to meet you either directly through the view screen or targeted by the cross hairs of the look-down radar, which can help you locate and line up with the runway. As the ship starts slipping and the mountains on the landscape tilt, the instrument panel provides a continually changing readout. The artificial horizon gauge in the center shows roll and pitch, and other gauges indicate speed, glide angle, altitude, and compass headings. Just when you think you're going to lose it, you can toggle on the auto-pilot.

Unlike with aircraft flight simulators that include libraries of airfields and permit many variations on takeoff, flying, and landing, there is only one way to land the shuttle. To put the space vehicle through the double-s curve of its plummeting glide path demands a skillful understanding of the controls and the aeronautical principles behind them. Studying the patterns the auto-pilot takes as it completes a successful mission through various wind conditions and cloud cover is the best tutorial.



One of the outstanding features of Mac Challenger is its video recorder and play function. After you record a mission, you can watch the three-dimensional wire-frame graphics images of the shuttle and the landscape roll by. You get ten camera positions to choose from, including from above, chase planes, and various ground points. It's like being a television news director, cutting between live feeds and instant

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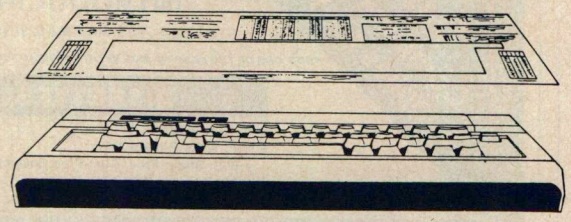

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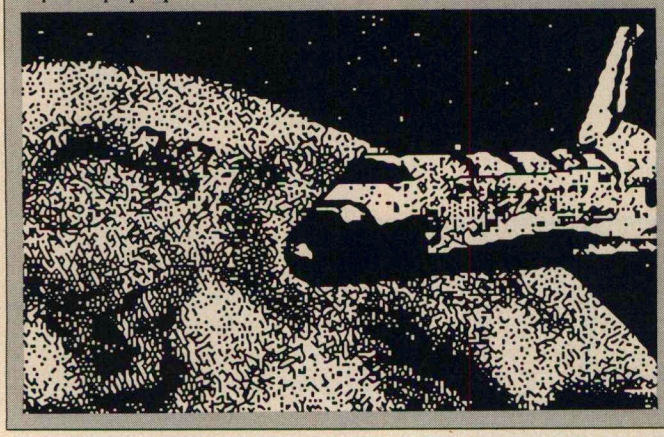

PEANUTS PEDAGOGY

It had to happen. In the last 35 years, Charlie Brown and Company have assumed a variety of life-forms, appearing as toys, novelties, stuffed animals, TV characters, funny greeting cards—you name it. Guess it was just a matter of time before the Peanuts gang conquered the computer-game industry too.

Random House Software has released a series of Peanuts games for children, the central aim of which is to make learning fun. (A few of the titles, however, sound like those of plain old games, and some should even appeal to adults.) The cast of characters ranges from the indefatigable Snoopy to the charismatic Peppermint Patty.

Charlie Brown's ABC's performs like a trooper in helping youngsters through their first and most important scholastic hurdle: the alphabet. This program introduces the letters A–Z to children, with gusto, humor, and common sense. The characters come to life in that warm, shaggy Shultz-like manner that we've all come to love—a remarkable feat, considering that each figure was drawn by a computer. (As evidenced here, Pengiun Software's Complete Graphics System II is an excellent artists' tool.)

Here's how it goes: A letter appears on the screen. You must type the next letter in the alphabet or press the arrow key. The correct letter appears alongside a

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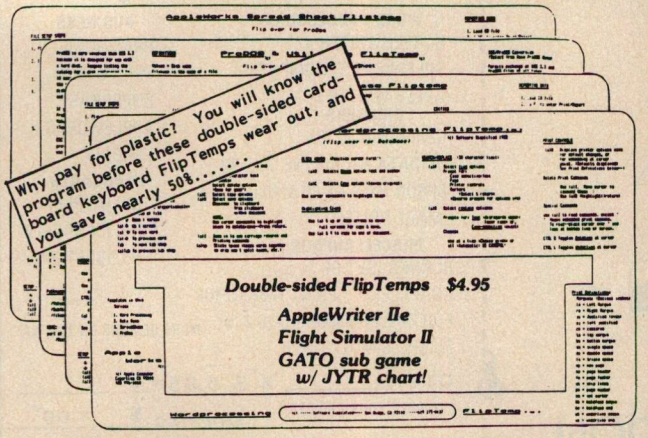

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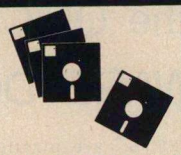

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No wonder we call it Better Working.™

The facts are in.

And as you can see from our little chart, the Better Working™ WORD PROCESSOR not only offers some important and useful advantages, it offers them for considerably less than certain other well-known brands.

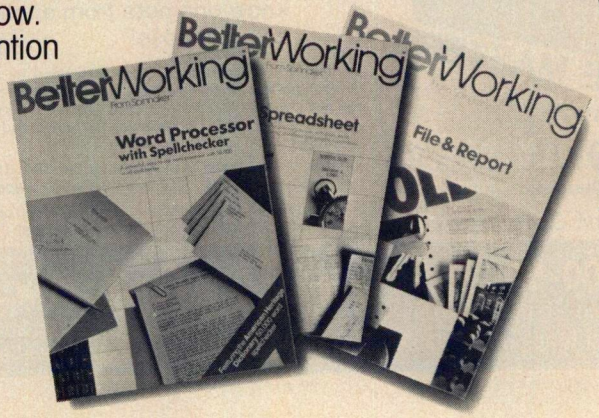
Now we'd be the first to admit that the chart above can't tell you everything you need to know.

So we'd also like to mention that neither of our high-priced rivals offers one-time printer customizing. And that you can't even buy a spellchecker to use with them (the American Heritage Spellchecker in our program finds 99% of all common mistakes). While only our most costly competitor matches our abilities to undo a delete command, lock and unlock files and provide 40/80 character on-screen capacity.

Finally, just in case you're thinking of paying the extra $65-$90 for an established name, we should point out that Better Working is a division of Spinnaker Software Corporation, one of the most respected companies in home software. And Better Working isn't limited to word processing—there's FILE & REPORT and SPREADSHEET, too.

All of this begins to explain why we call it "Better Working."

What it doesn't explain is why you'd want anything else.



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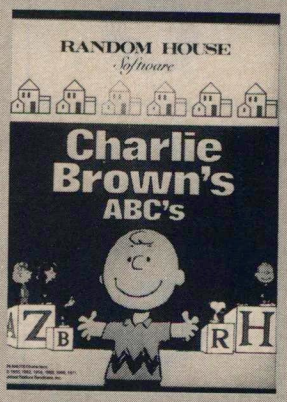
* Comparison based on Apple® II Series versions.

typical word starting with that letter. When you type the letter on the screen, an animated cartoon takes



place. The pint-sized Peanuts people act out a cute, colorful scenario that involves the word in some way. With repeated exposure to the entire run of 26 rewarding action sequences, the child should master the alphabet.

Wait! There's more. Packed with the program comes a bunch of cardboard rectangles, each printed with uppercase and lowercase letters, and corresponding picture cards. Parents and children can play matching games with the cards, arranging them in various ways. In this manner, children should obtain familiarity with the letters in printed form.

Another cardboard rectangle shows letter placement on the keyboard. Its glossy texture lets you use a grease pen, if you desire. In addition, the letter cards are marked to cue their position on the keyboard. Certain games help to teach children the location of alphabet keys. The instruction booklet describes all these cardboard matching games, with names such as Little Letter Hunt, Letter Whiz, and I Spy, in more detail.

Speaking of the booklet, it has 28 pages and rates an A for Apple. A parade of word balloons and black-and-white illustrations of the Peanuts crew enliven the text, making the instructions easy and fun.

As far as the animation is concerned, the stop-motion quality roughly equals

the current state of the art of computer-created "moving pictures." The figures shift about in jerky motion, in the old-time manner of *Yesterday's Newsreel*. But,

> The Peanuts people act out a scenario that involves the word in some way.

let's face it: Few computer programs can yet capture the liquid movement of a Disney film. With that in mind, you should find that the animation of Charlie Brown's ABC's more than suffices.

I recommend this program highly for ages 3 to 7.

John DiPrete

Charlie Brown's ABC's
Random House Software
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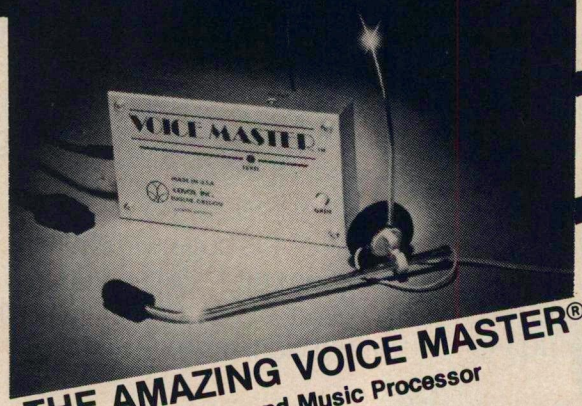

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```
10 PRINT CHR$(21): COLOR=2:
   FOR X=0 TO 39 STEP 2: FOR Y=1
   TO 47 STEP 2: Z=Z=0: PLOT
   X+Z,Y: NEXT Y,X
20 POKE 37,255
   GOSUB 94
```

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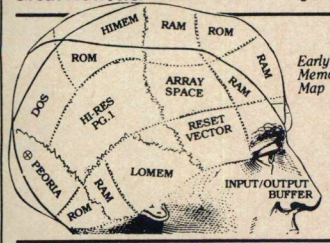
Great Reviews: See Jan-85 *A-Plus* Magazine.



Early Memory Map

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Search and Replace: Find every occurrence of a string or variable in your programs. Or *replace* any word with any other. For example, change all X's to ABC's, or all "HORSE" strings to "COW".

Function Keys: Define your own Apple "function keys". For example, ESC-1 can Catalog drive 1, ESC-N can clear the screen and type your name and address, etc. Customize your Apple with a set of functions that perform any set of tasks you want.

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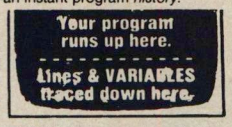
Program Packer: D Code squeezes wasted and unused bytes out of Applesoft programs, saving valuable memory and increasing speed & efficiency.

Automatically combine program lines, shorten variable names and/or remove REMarks. Uncover wasted program lines that can't possibly be executed.

Auto-Proofreader: Typing errors are caught as you type, and *before* someone runs your program. Or you can simply type "CHECK" to scan an *entire program* and uncover potential crashes.

Super-Trace: When a program stops or crashes, type "DUMP" to see the last 10-10,000 statements and line numbers that were executed, in the order executed—an instant program *history*.

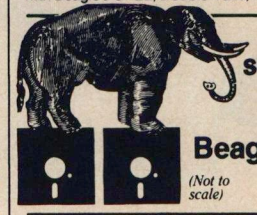
"Live" tracing too, with each executing statement, line no. and selected variable value in a window at the bottom of screen.



Breakpoints: D Code lets you set up de-bug "breakpoints" so your program stops when you want it to. For example, you can ask that your program be stopped when X gets set to 99, or the 3rd time a particular statement is encountered.

Lightning-Fast Find! Find strings & variables *fast*—large programs searched in about *2 seconds!* This feature alone is worth the price of D Code.

GPLE Compatible: D Code remains "transparent" to your programs and is fully-compatible with Beagle's GPLE, Double-Take, ProntoDOS, etc.



Most software stores carry Beagle Bros disks.

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```
0 HOME
1 FOR X=1 TO 15
2 S=PEEK(49200+00000): NEXT
3 N=INT(RND(1)*5)+48
4 POKE 2075,N: POKE 2081,100-N
5 VTAB 9: LIST 1-2: GOTO 1
```

—Early Speech Synthesizer

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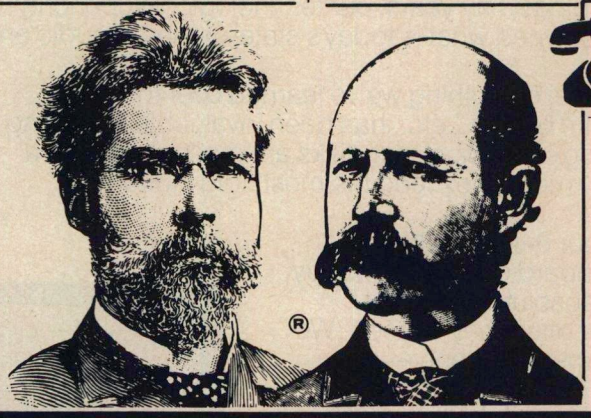

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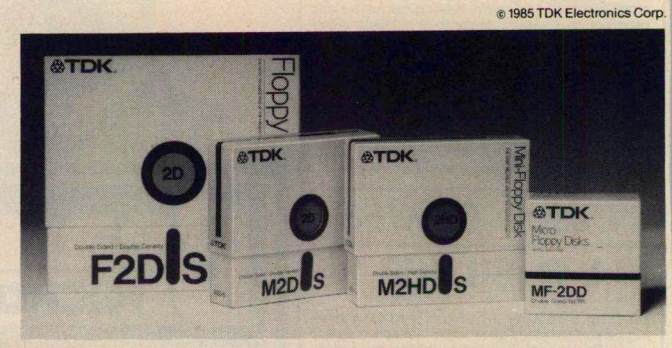

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Who knows what evil lurks in the minds of men? You will, while you explore the phantasmagorical electronic novel Mindwheel. Set in the not-so-distant future when (what else?) the world is teetering on the brink of self-destruction, your quest in Mindwheel is to travel telepathically through an interlocking matrix of the minds of four related individuals. Although all four of these people are deceased, their thought patterns can still be tapped into, and they are the only conduit to your ultimate goal, the acquisition of the all-powerful Wheel of Wisdom. With the wheel in tow, you return to consciousness and, voilà, the world is saved. Of course, this synopsis is just the bare bones of the story. Mindwheel is as intricate and puzzling as an adventure game should be. It is also quite bizarre, having the feel of a nightmarishly contemporary, grown-up *Alice in Wonderland*.

The creators of Mindwheel have devised a style of all-text adventure game that is ingeniously different from the standard format developed by Infocom. You play Mindwheel by first reading several short chapters in a book that comes in

the game package, until you get to the part where you, the mind-adventurer, lie down on a table in Dr. Virgil's laboratory. (Dr. Virgil, you see, was the first to conceive of neuro-electronic matrix travel, and he supervises the expedition.) At that point, you switch to the computer to actually play the game.

The four minds through which you must travel belong to Bobby Clemon, an assassinated rock star; the

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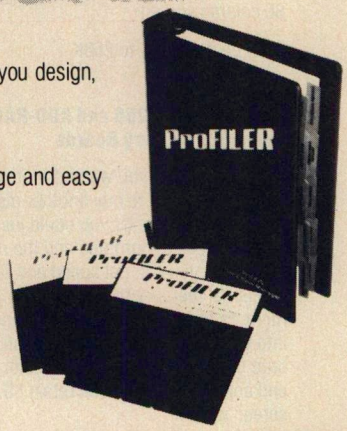

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Generalissimo, a dictator and war criminal; The Poet, a passionate genius; and Dr.

▶ Pay strict attention to all the song lyrics, signs, and hints.

Eva Fein, a scientist and humanist. Detailed descriptions of their lives and achievements are in the game notes.

Beware: What you experience in Dr. Eva Fein's mind bears no relation to anything written about in the book! As a matter of fact, the whole game is somewhat different from what you'd expect after reading the material included with the disks—just an observation, not a criticism.

On its own terms, Mindwheel is enjoyable and challenging, but it definitely doesn't live up to the premise (which would make a great science-fiction movie) or the promise of the hype. How I wish we had more truth in advertising for game packages.

How's your grasp of poetry? I was a little thrown by the emphasis given to poetry in the game—some of the puzzles involve the completion of sonnets and the solution of poetic riddles. All in all, they're not too difficult to solve, provided you pay strict attention to all the song lyrics, signs, buttons, and hints you get along the way.

The game is well written, with vividly descriptive, often witty prose throughout. The game parser needs to be perfected, though—it sometimes comes up with strange responses to input. For example, I typed Step on the ladder, and the game responded with You draw back your mind-adventurer boot and give the twelve-foot ladder a swift kick. Since Mindwheel is the first in a proposed series of electronic novels from Synapse & Brøderbund, this problem will surely be remedied.

Donald Oliver

Mindwheel
Synapse
17 Paul Drive
San Rafael, CA 94903
(415) 479-1120
List Price: $44.95
Requires: Apple II, II Plus, IIe, or IIc; 48K RAM; one disk drive

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So you want to be a text adventurer. What does it take to play—and survive? You'll need the curiosity of a cat, the greed of a pack rat, and the fear of a hamster. And that cat component had better bring along all nine lives, especially in a game such as Gateway.

Gateway on the Macintosh is picky, sticky, and tricky—and worth it. From the very start, where you find yourself in the abandoned office of your late Uncle Bertrand, puzzling over his cryptic journals, you will need all your wits about you. Don't daydream, though; you'll have to act fast to keep up with the action as fate thrusts you

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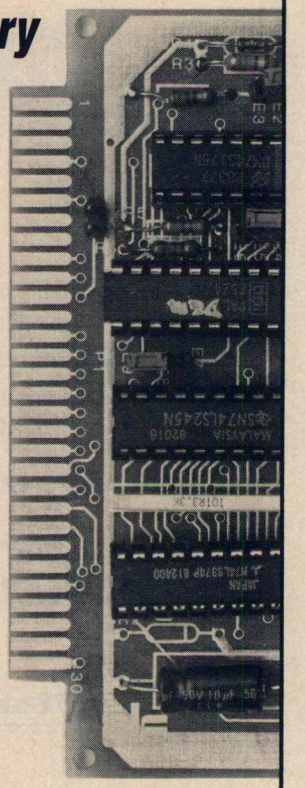

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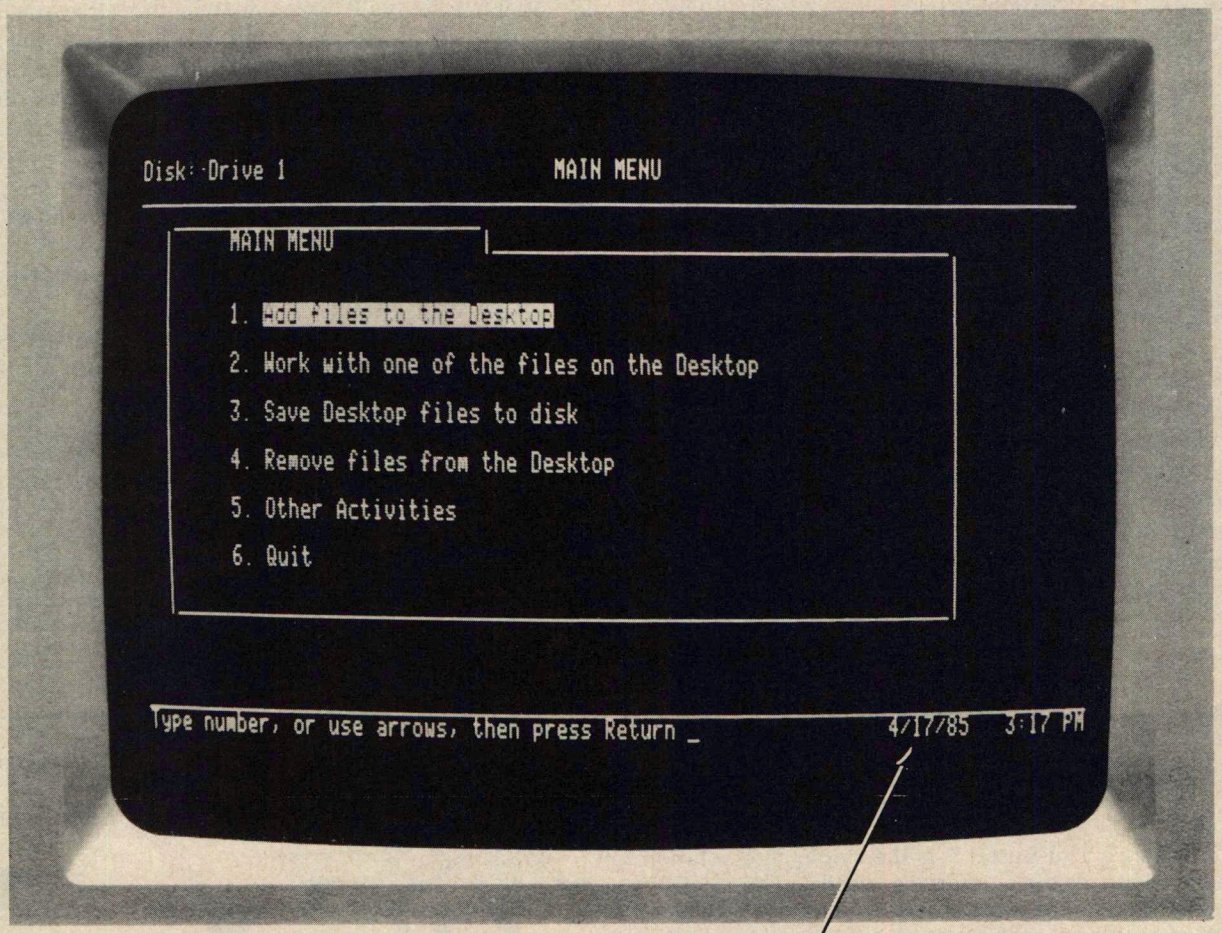

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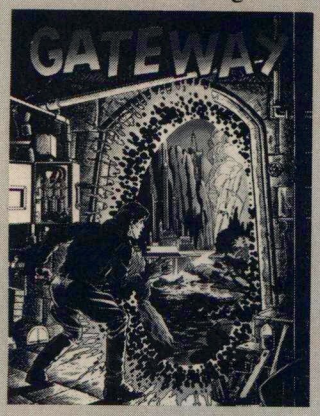

To save our universe, you'll have to trek through the jungle, dodging dinosaurs and other nasty perils, to reach an abandoned city. If you can solve the specs of all the weird machinery and fussy robots, you may find and liberate Ariel, the mysterious redhead. But is she what she seems? Forge on to the Black Tower, nexus of the gateways. Are you mean enough to go one-on-one with the satanic Groulnar? The fate of humanity hangs in the balance!

When you don't know which way to turn, the elusive K'rnth might appear with whimsical riddles for clues. If you don't mind being docked a point or two, you can always resort to Gateway's on-line help. A pull-down menu provides hints that are subtle, substantial, or "the answer." If you're willing to spend the dime, Pryority's phone support is excellent.

The use of the Macintosh makes traveling through Gateway all the more pleasurable. When you need to go north or south, left or right, up or down, a mouse-click on the control panel gets you there instantly. An inventory menu shows what you're carrying, and the diagnostic reveals how soon you'll need to eat, drink, or snooze. Fifteen screen illustrations along the way give the adventure a strong cinematic feeling. From the three color prints included in the package, keen-eyed explorers can glean visual clues.

> Are you mean enough to go one-on-one with the Satanic Groulnar?

You can save and restore "lives" in the form of files, and you should set a second disk aside for them. Time and again you will have to return to a life position when you find yourself stranded without some essential object that you missed. It's like having hitchhiked a hundred miles to a Stones concert without your ticket. The richness of invention, attention to detail, and wacky sense of logic in Gateway are so good that you will want to explore every crevice and cavern.

Anthony Reveaux

Gateway
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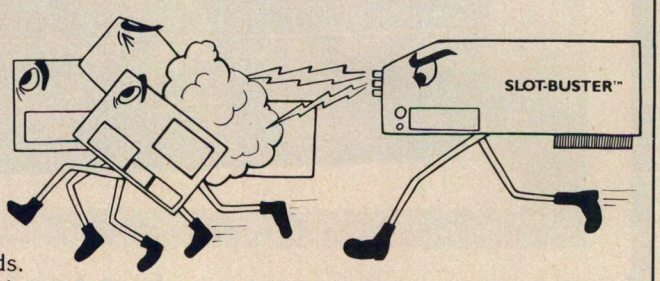

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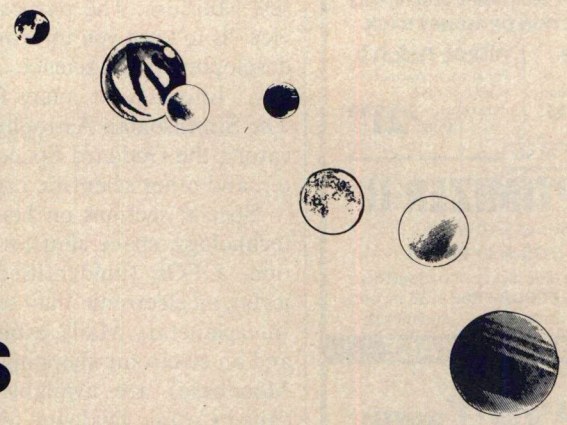


COMET COMMUNICATIONS

As comet mania sweeps across the country, renewed interest in the National Aeronautics and Space Administration (NASA) and the U.S. space program is finding its way into the telecommunications world. Many sources, from NASA's Office of Public Affairs to a group of space enthusiasts, provide up-to-the-minute information about Halley's comet, space-shuttle launches, and other space-related subjects. This virtual cornucopia of news is only as far away as your Apple and modem.

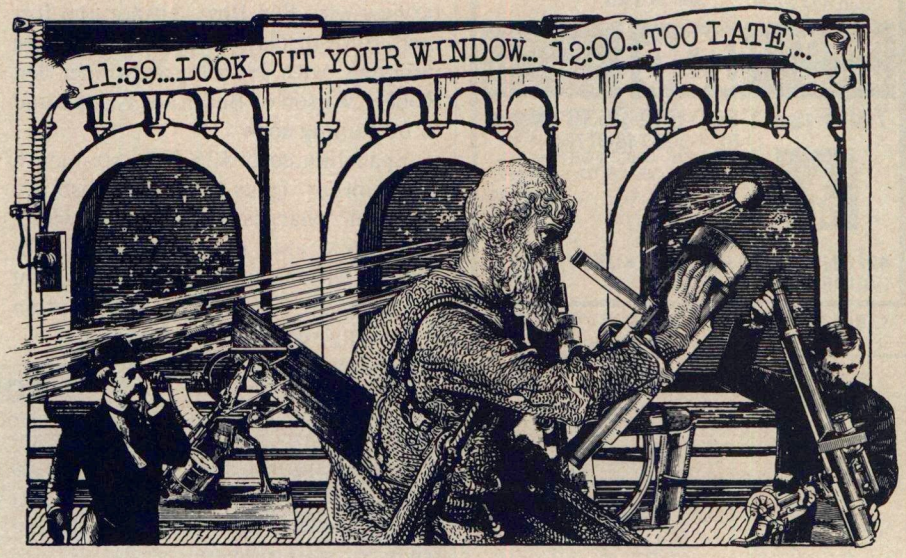
NASA on FedNews

Back in the August 1985 column, I profiled ITT Dialcom's FedNews, a collection of electronic information services supplied by the U.S. government. One section within FedNews is devoted to NASA and "contains recent press releases, status reports, calendar of events, and other information about NASA and its programs."

The section divides into six topics: recent news releases, shuttle status reports, other launch-status reports, 1984 news-release index, contact persons at NASA, and current space-shuttle mission information.

Just about all the news you want from NASA is on-line. For example, one time I was navigating through the various topics and news stories, and I came across an item about international cooperation in exploring Venus and Halley's comet. NASA had agreed to use its Deep Space Network to aid France in tracking the entry of a lander from the Soviet VEGA Spacecraft into the atmosphere of Venus. The Soviet craft then headed toward Halley's comet for a rendezvous in March 1986. The article continued in detail about the mission.

That may not sound like much, but it is more than what my local daily newspaper covered. Yes, I did see a 30-second segment on the nightly news, but without the detail.



WILLY KEATS

Want more? How many of you know about the Comet Giacobini-Zinner? It is not exactly a household name to most of us, but it is important enough to scientists for them to nudge a satellite toward a rendezvous.

A virtual cornucopia of news about Halley's comet is only as far away as your Apple.

Let me give you an even better example. How many astronauts have been selected? What are their qualifications? Better yet, where do you apply to become an astronaut? Well, the answers to these questions are on-line.

I could go on and on, for the NASA section on FedNews is a virtual treasure trove of information about U.S. space efforts. Like most services, this one exacts a heavy toll from your wallet—to the tune of $35 per hour. Too bad ITT Dialcom cannot offer a special after-hours home service, like Dialog's Knowledge Index or BRS's After Dark, discounted to less than $10 per hour.

By the way, at press time, 157 astronauts had been selected. Of the most recent inductees, six are civilians. Selected individuals possess a highly technical background, including a Ph.D. in physics, M.S. in astronomy and engineering, and B.S. in aerospace engineering. If you think you could make the grade, or if you are a congressman in charge of NASA funding, contact NASA, Johnson Space Center, AHX/Astronaut Selection Office, Houston, TX 77058. So tell me, folks, what do you think the chances are of a computer-magazine journalist hitching a ride on the next shuttle?

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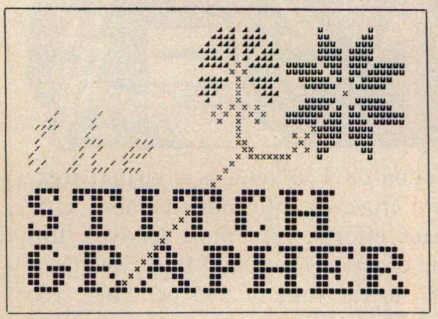

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Spacelink, a fairly recent entry into the telecommunications market, was founded in February by Gary Swangin, former astronomer and director of the Planetarium at the Newark, New Jersey, Museum. The purpose of the service "is to keep you informed about the developments in science and technology," Information comes from NASA, The Smithsonian Astrophysical Observatory, the Goddard Space Flight Center, and other scientific organizations.

Special sections on Halley's comet, technology, space shuttles, science fiction, UFOs (unidentified flying objects), an electronic-mail service (called Interplanetary Mail), a bulletin board, and an electronic shopping mall (called Moonbase) are available. A section called Cosmic Dialogue features an interview with Ben Bova, author and former editor of *OMNI* magazine, and an interview with Nobel prizewinner Dr. Robert Wilson of Bell Labs is supposed to be coming soon.

Spacelink costs $25 for a six-month subscription (plus the long-distance telephone charges to call the service). Swangin counts more than 500 subscribers within the first six months. You can sign up via modem; subscription processing requires 24 hours.

CompuServe Services

CompuServe boasts a pair of astronomy information sources.

The Naked Eye Astronomy special-interest group (Go NIA-1) offers a starting point for would-be astronomers. The premise is that stargazing began with the naked eye and that all you need is your eyeballs, a star chart, and some information to explore the heavens.

A special-interest group holds interesting notes about the history of stargazing (did you know that the International Astronomical Union recognized 88 official constellations in 1930?) as well as important information on star positioning. Individual sections cover the stars, sun, planets, moon, celestial potpourri, calendar of historical events, and a glossary.

The celestial-potpourri section holds all the news about comets. It ranges from the trivial—for example, the term *comet* translates as *long-haired*—to more practical information.

Over at the Space Forum (Go HOM-127), the information is similar to what is on ITT Dialcom's FedNews. Nine special sections—NASA, Non-NASA programs, space technology, space politics, space development, science fiction, astronomy, model rocket-

▶ SPACE TRIVIA

While researching this month's telecommunications column, I came across several interesting news items. For better or worse, I present space-related trivia for your enjoyment.

Two fragments of Babylonian clay tablets overlooked for 100 years in the British Museum allegedly report the earliest reliable sightings of Halley's comet—between November 9 and 26, 164 B.C.

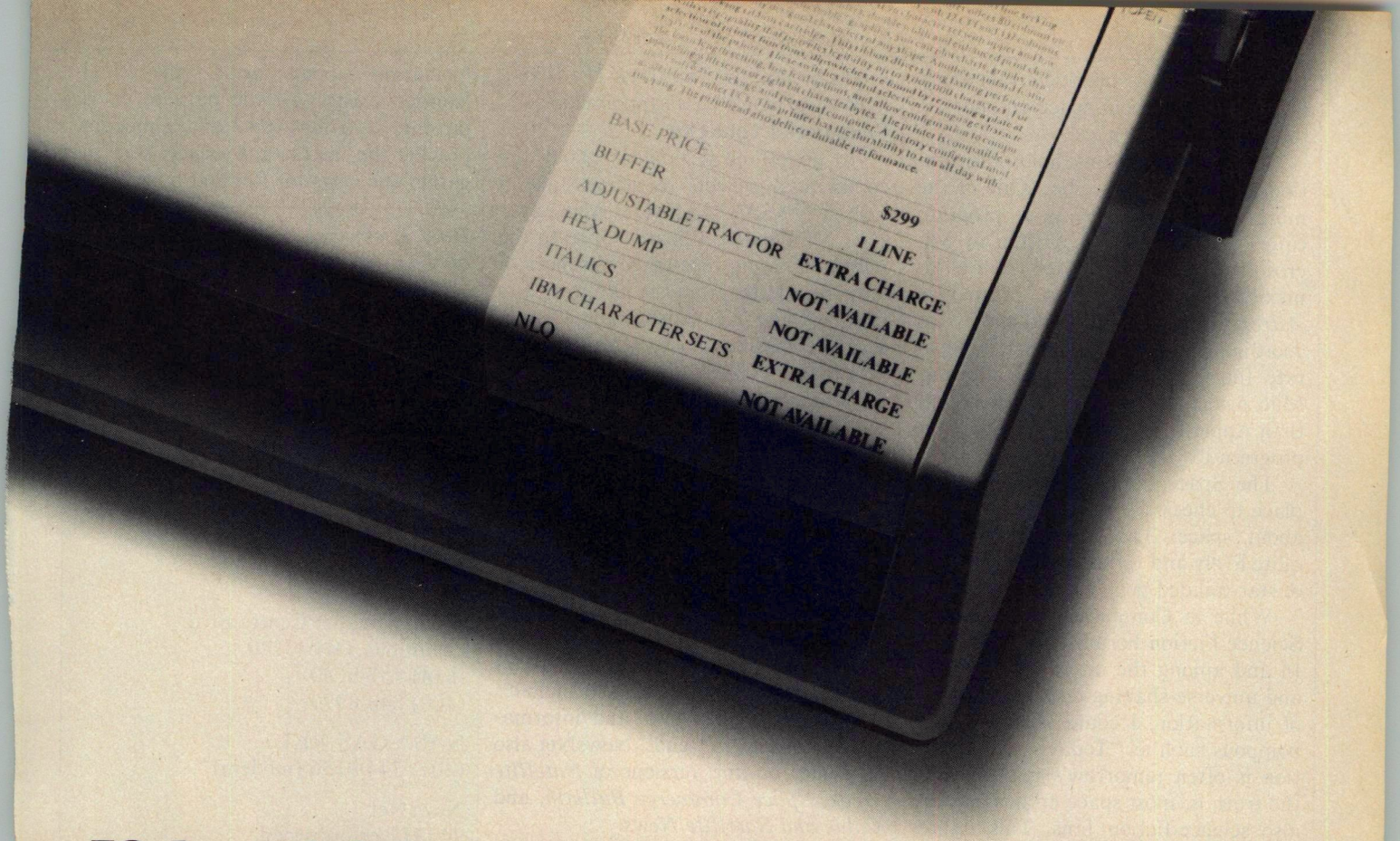
Spacecom, a company owned by Fairchild Industries and Continental Telephone, is under the contract to provide NASA with ten years of continuous telecommunications service. Its multibillion-dollar Tracking and Data Relay Satellite System provides worldwide communications links between orbiting spacecraft and satellites and a ground terminal at speeds of up to 300 million bits per second.

T.C. Swartz, head of Society Expeditions tour company in Seattle, Washington, is planning to offer three-day, 48-orbit tours aboard a space shuttle. He is trying to convince NASA to put a tourist module, holding 24 to 32 people, on a shuttle by the mid 1990s. The price? A cool $1 million per person. Swartz claims the price will drop to the bargain rate of $50,000 by the beginning of the next century.

Yvonne Clearwater, the head of NASA's Habitability Research Group, is recommending that NASA create individual, soundproofed quarters for space-station sex. Writing in *Psychology Today* magazine, she claims that locking people up for 90-day stretches calls for planning for the possibility of intimate behavior. Lockheed is already one step ahead of her—it has designed a compartment for two, described as being for a married couple.

The New Jersey Astronomical Association, which operates the largest amateur-owned telescope in the eastern United States, is selling a Halley's comet kit for $5 plus postage and handling. Interested? Contact the association at Box 214, High Bridge, NJ 08829; (201) 638-8500.

By the way, the official pronunciation of *Halley* rhymes with *valley*. The *Halley* that rhymes with (Beetle) *Bailey* is the name of a 50s rock-and-roll singer.



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CIRCLE 211 ON READER SERVICE CARD

ry, and skyriders—provide a vast array of information about space and our attempts to conquer it.

Section 7, astronomy, holds information about Halley's comet. One of the more interesting files is a program called HALLEY.BAS written in Microsoft BASIC. Translated from a Timex-Sinclair (!) program printed in *Astronomy* magazine, it calculates the coordinates of Halley's comet. A separate file contains the documentation. Mac owners will have an easier time than Apple II owners in translating the program for their computers.

The Space Forum is an interesting place to check for general information about space. The message board is quite lively and reflects the enthusiasm of star-minded people.

While in CompuServe, look at the Science Fiction Forum (Go HOM-27). In and among the intergalactic gossip and universe-shaking opinions lie gems of information. I could say something pompous such as "Today's science fiction is often tomorrow's reality," but, the truth is, most space enthusiasts are also science-fiction fans. This lighter side of science offers such goodies as "Star Trek" trivia, "Dr. Who" info, and a proposed synopsis of the plot that might be used in *Star Trek IV*. Take a look—you won't be disappointed.

Commercial Time Out

To go off on a tangent about the commercial aspects of space, take a look at NASA's GAS (Get Away Special) NET bulletin board. Open to the public, it offers lists of conferences, a daily newsletter from the public-affairs office of the Kennedy Space Center, and information about GASs.

What is a GAS? It's a self-contained experiment on a space shuttle that studies some aspect of zero gravity and costs between $3000 and $10,000.

Although the public can access GAS NET, only people who have sent projects aloft can post information on the bulletin board.

NewsNet offers the full text of Space R&D Alert, a newsletter that provides information about government and private-sector research and development in space marketing. It includes new patents, interviews, and information on long-term trends. NewsNet also publishes on-line versions of *Satellite Week*, *Space Commerce Bulletin*, and *Cable and Satellite News*.

Well, NASA fans, that about wraps up my Hitchhiker's Guide to Astronomy Telecommunications Services. Information about space, the final frontier, exists—all you have to do is tap into it. Your Apple and a modem provide the fastest and easiest way to gather the news for fun and profit. ✚

Russ Lockwood is an assistant editor of Creative Computing *and a former staff writer for the New York Times Information Service.*

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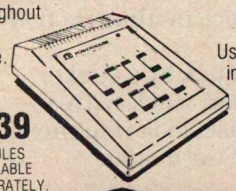

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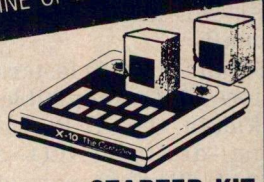

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- Connects to either modem or printer port.
- Variable size volume allocation utilizes all available space efficiently.
- Backup program makes backup foolproof and fast!
- Printer spooler frees the Macintosh™ for more work.
- Works with 128k or 512k Macintosh.
- Warranteed for six months– parts and labor.

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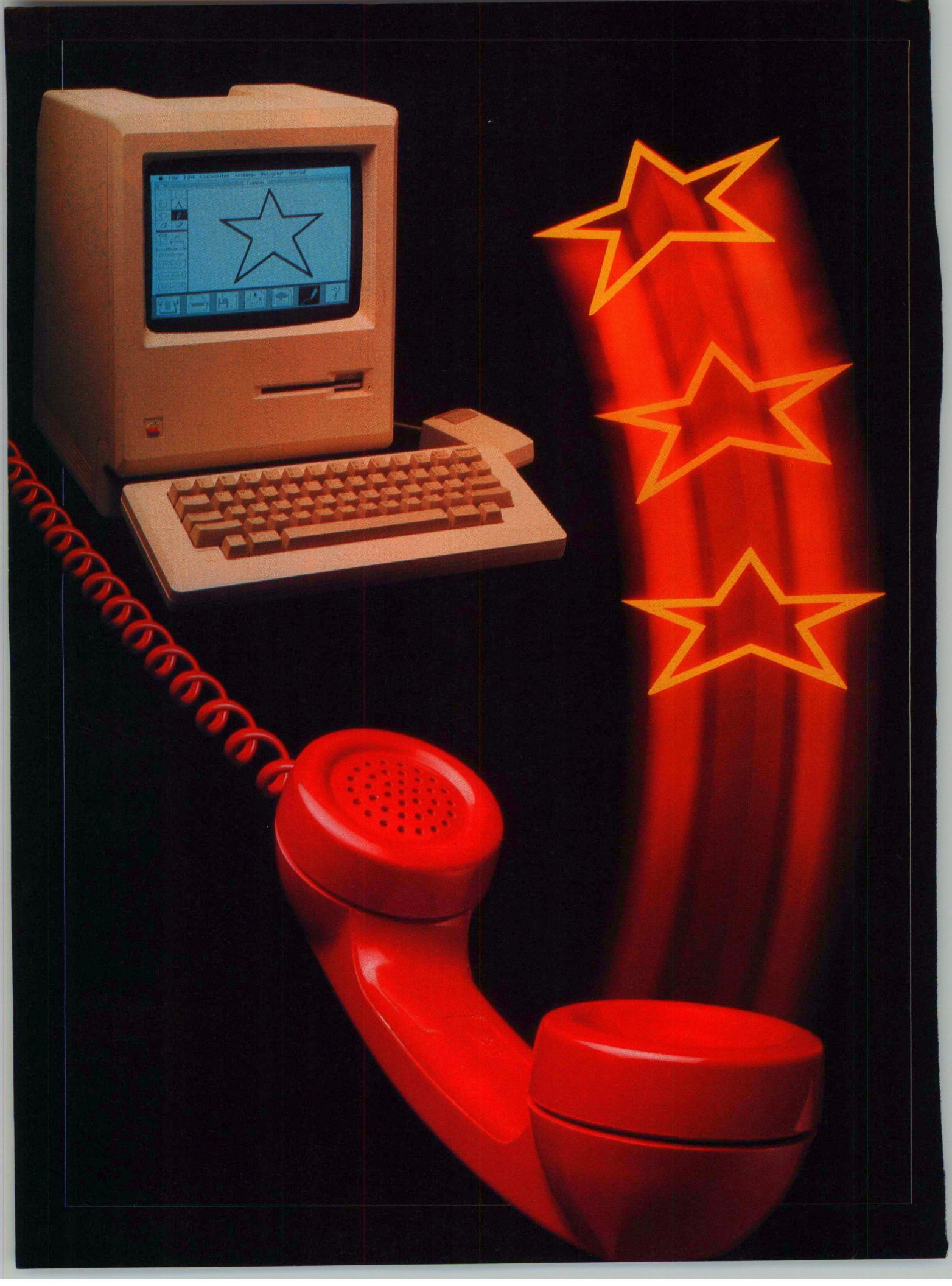

Get Smart with Smartcom II

Smartcom II offers the ease of the mouse- and icon-driven environment and the flexibility of interactive graphics.

In this "get it there yesterday" world, telecommunications provides a definite speed advantage over other delivery services. The ability to transmit and receive information instantly offers a real boon to businesses and a real convenience to home users. Modem and telecommunications-software sales are growing, and telecommunications services are realizing an increase in subscribers and connect time.

Hayes Microcomputer Products is a giant in the modem marketplace. Its Micromodem IIe, paired with Smartcom I telecommunications software, is well known by Apple IIe owners. Its Smartmodem line of internal and external modems, paired with Smartcom II software, is especially popular with owners of IBM PCs and compatible computers.

That leaves only the Apple Macintosh as odd business computer out—not because of the hardware, for one RS-232C port functions pretty much as another, but because Hayes did not move as quickly as expected in releasing telecommunications software that works with the Macintosh.

Wait no longer. Hayes has overcome its inertia in a big way with a Macintosh version of its Smartcom II program. This program merges the capabilities of the original Smartcom II with the mouse- and icon-driven environment of the Macintosh. The result is a powerful telecommunications package with a multitude of features and an easy-to-use format.

Telecommunications Prowess

Any software that uses the mouse- and icon-driven environment intelligently is easier to use than its keyboard-based twin. Invoking various functions with the point-and-click method is faster than picking choices from a menu.

Smartcom II runs a series of seven icons—a telephone, printer, disk, closed envelope, open envelope, pencil, and question mark—along the bottom of the screen. These icons control most of the routine on-line functions. A set of pull-down menus—Connection, Settings, Autopilot, and Special—at the top of the screen control the added features.

The fastest way to log onto a system is to click on the telephone icon. A dial box appears on the screen. You point and click on the telephone numbers and then click on OK. A call-progress box lets you know the status of your call, from setting up the Smartmodem to connecting with a telecommunications service or bulletin-board system (BBS).

If you regularly log on to CompuServe, The Source, BRS (Bibliographic Retrieval Service), or other services, you want one-click access. Smartcom II allows you to create "communications documents"—files stored on disk with the appropriate modem parameters, terminal type, and transmission protocols.

The parameters include transmission speed, from 110 bps (bits per second) to 19,200 bps; bits per character, seven or eight; stop bits, one or two; and parity, even or odd. Other settings include time delays for carrier signals, speaker control, carrier type (either the Bell North American standard or CCITT international standard), word wrap, and line feeds. Terminal types include TTY (normal) and DEC VT-52 and -102 emulation. The advantage of the Mac version of Smartcom II is the ease of changing these settings with the mouse.

Hayes thoughtfully includes several communications documents on the Smartcom II disk. Of course, you can add your favorite BBS or telecommunications service to the list. The procedure is fast and painless.

Smartcom II goes one step further, however. You can create Autopilot files that automatically log on to an information service and perform repetitive commands. For example, you can set up a file that dials the local access number for CompuServe, logs you on to the system, and immediately places you into your favorite special-interest group. Even better, Autopilot commands include the ability to perform an automatic log on at a predetermined time and to react to certain conditions—without your

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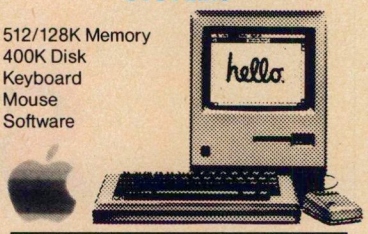

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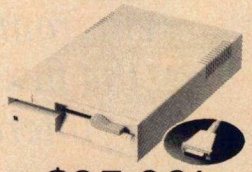

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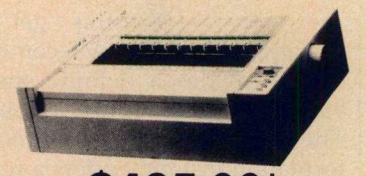

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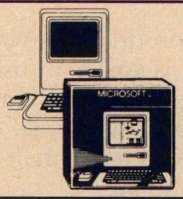

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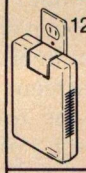

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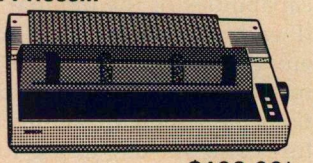

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monitoring the computer.

One of the major reasons for subscribing to an information service is to download data from a service and store it to disk for later use. In the case of BBSs, you want to upload data from your disk to the system.

Smartcom II provides both capabilities. When you click on the closed-envelope icon, a directory of disk files appears in a window. Transmitting a file is as easy as pointing and clicking. You should note that sending information between Macintoshes is quite different from sending information between other computers. Macintosh files are divided into two parts: data, which contains text and graphics; and resource, which contains other information used by Macintosh applications. Pairing the right file-transfer protocol with the right computer is vital.

The same rules apply for receiving files. Additionally, Smartcom II allows you to transfer portions of text from screen to disk with a double click of the mouse. This step is especially useful for storing selected news stories from a news service or capturing selected paragraphs from electronic-mail messages.

The ability to exchange text and graphics is a big step in the right direction for the evolution of telecommunications.

If you want a hard copy of a file without saving it to disk, click on the printer icon to start printing and click on it again to stop.

Interactive Graphics

Perhaps the most exciting aspect of Smartcom II is its interactive graphics. If two people are using 512K Macintoshes (Fat Macs) and Smartcom II, both can work on one drawing. This "canvas" feature of Smartcom II functions like a subset of MacPaint, with draw, erase, line, box, cut-and-paste, and text functions. As one person draws, the other person sees the image instantly. Graphics may be created from scratch or from an existing picture copied from the Clipboard.

Only one person at a time can draw. The commands are Pick Up, to start drawing; Put Back, to stop drawing; and Request, to ask for control of the canvas. You can send messages by actually writing on the canvas or by choosing the A icon and typing on the canvas. Any graphics you create with Smartcom II can be integrated into MacPaint and MacWrite files.

Evidently, someone at Hayes enjoys the game of chess. Just as you can create drawings with the interactive graphics feature, you can also play interactive chess. Copy the chessboard and pieces from the Scrapbook into the Clipboard. While on-line with somebody, choose the graphics icon and paste the chessboard and pieces to the canvas. You then cut and paste to move the individual pieces and undo your last move. Again, you need a 512K Macintosh to use this feature.

Help and Documentation

On-line help is always available. Just pick something from the list of topics, and a window with the appropriate information appears on the screen. On-line help is sufficient to jog your memory about a particular

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```
APPLESOFT
290  GET A$: IF A$ = CHR$ (27) THEN
      END : REM ESC KEY PRESSED
300  IF A$ = CHR$ (32) THEN 320:
      REM SPACE BAR PRESSED
310  PRINT CHR$ (7):: GOTO 290: REM
       BEEP AND TRY AGAIN
320  HOME : PRINT : REM  PROGRAM
      STARTS HERE
330  LET D$ = CHR$ (4): REM CTRL-D
340  PRINT D$"MON C,I,O"
350  PRINT D$"OPEN DO'ER"
360  PRINT D$"WRITE DO'ER"
```

```
MONITOR
*FFOOL
FF00-   A9 16     LDA   #$16
FF02-   20 C9 FC  JSR   $FCC9
FF05-   85 2E     STA   $2E
FF07-   20 FA FC  JSR   $FCFA
FF0A-   A0 24     LDY   #$24
FF0C-   20 FD FC  JSR   $FCFD
FF0F-   B0 F9     BCS   $FF0A
FF11-   20 FD FC  JSR   $FCFD
FF14-   A0 3B     LDY   #$3B
FF16-   20 EC FC  JSR   $FCEC
FF19-   81 3C     STA   ($3C,X)
```

```
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]CATALOG

DISK VOLUME 254

*A 004 HELLO
*B 050 INTBASIC
*B 050 FPBASIC
 A 051 PHONE LIST
*A 003 USING MODEMS W/ MAC COM
*B 017 MAC COM
*I 017 BICRHYTHM
*I 009 COLOR DEMO
```

```
MAC COM

MAC COM

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1:  1200
2:  2400
3:  9600 DIRECT CONNECTION
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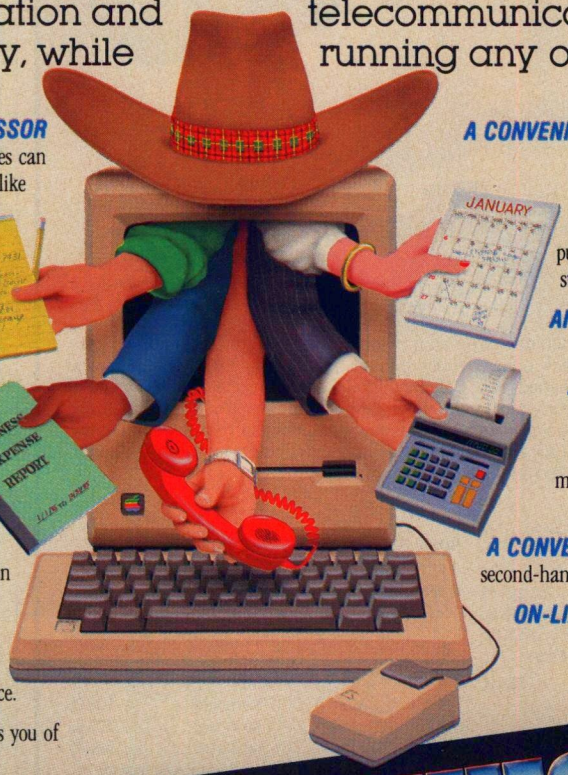

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CIRCLE 163 ON READER SERVICE CARD

function. More extensive information is available in the accompanying manual.

The documentation for Smartcom II deserves high marks for clarity and organization. Examples are straightforward and to the point, and each command is fully explained. Although programs for the Macintosh are supposed to be intuitive, it is reassuring to know that Hayes took the time and effort to turn out a first-class manual.

Instant Access

Overall, Smartcom II is an excellent telecommunications program for the Macintosh. It takes advantage of the mouse and icons to make a fast and flexible program. For owners of Fat Macs, the interactive graphics feature proves to be an especially appealing one. Companies with satellite offices can work together on sales forecasts, reports, and other business presentations. The ability to exchange text *and* graphics is a big step in the right direction for the evolution of telecommunications. Hayes deserves a hearty pat on the back for putting this feature into Smartcom II.

Of course, 128K Macintosh owners can use this powerful program too, even without the interactive graphics. When RAM upgrades become more affordable, more individuals will be able to take advantage of this feature.

Whether you own a 128K or 512K Mac, we recommend you take a serious look at Smartcom II. Pairing it with a Smartmodem (300, 1200, or 2400 bps) gives you and your Macintosh a flexible telecommunications system for instant access to a world of information and convenience. ✚

Russ Lockwood is an assistant editor at Creative Computing *and former staff writer for The New York Times Information Service.*

PRODUCT INFORMATION

Smartcom II
Hayes Microcomputer Products
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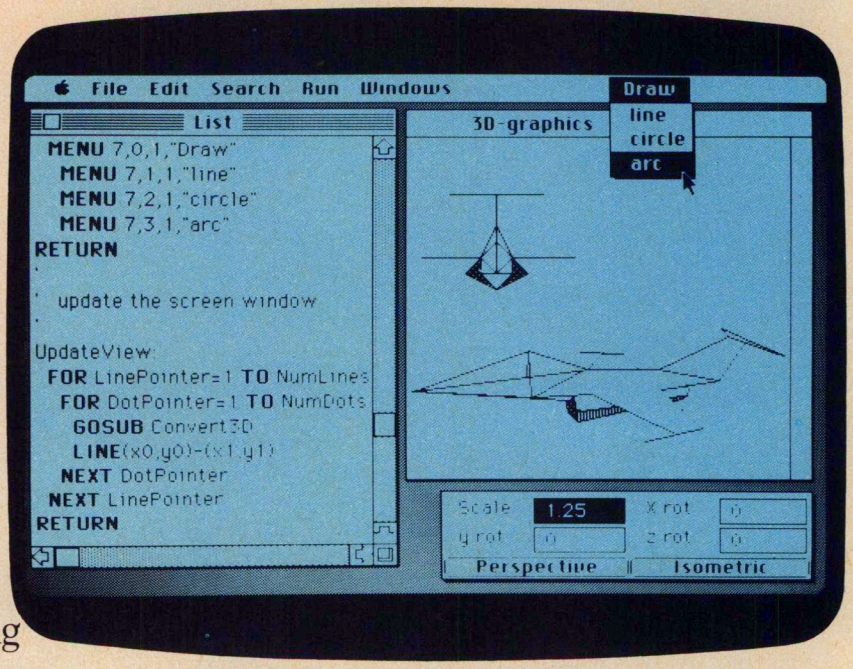

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You may not have an Apple LaserWriter of your own, but if you have access to one, there are a few things you should know.

What you see ISN'T ALWAYS What you get

Apple's new LaserWriter ushers in a new era in personal-computer print quality. Now "the rest of us" can prepare text at home and print it in quality that can pass for typeset. Unfortunately, the price you pay for this quality is that the WYSIWYG (what you see is what you get) rule is stretched, if not broken. That's not really surprising, since what you get should be *better* than what the Macintosh screen can display. The surprise is that the results sometimes come out *worse*. This article guides users with occasional access to a LaserWriter past the pitfalls in its use.

Like most *A+* readers, I can't afford a LaserWriter of my own. (If you *are* thinking of investing in a laser printer, see "Laser Printers," on pages 56–70 of this issue.) One of my local dealers offers printing on his machine at reasonable rates. (If yours doesn't, ask. It's a good way for a dealer to draw in customers, as well as put the machine to making money.) I prepare my documents at home, bring a disk in to the dealer, and print them. I still find it difficult to believe, as I look at the finished product, that I did that with a personal computer!

I have noticed that things don't print out quite like I expect them to, though. My dealer has no documentation on the LaserWriter (just using it doesn't really require any), so I've had to find out the little tricks on my own through experimentation.

Mixing text and graphics in a MacWrite document and printing it on the ImageWriter is easy, but when the ImageWriter prints its best text, the graphics suffer. With the default settings, pictures are somewhat squeezed horizontally, making them thinner than they appear on the screen.

If you want pictures to be in proper proportion, you have to use the Page Setup command and click on the Tall Adjusted button. This technique gives you squares that print as squares instead of tall thin rectangles and guarantees that circles will print round instead of oval. The text is wider as well, however, and the dots don't overlap as nicely as in high-quality printing.

The LaserWriter doesn't give you any choice in this matter. Instead, it always uses the equivalent of the ImageWriter's Tall Adjusted setting, which guarantees that pictures print perfectly. The side effect is that, although letters print out nicely, the text is still, in effect, stretched out to about 10% wider than it would be with the default setting of the ImageWriter. Actually, it's 11.1%, or a 10:9 ratio (see figure 1). So when you print your document with the right margin at 7.5 inches, the actual margin will be at 8.25 inches.

The LaserWriter feels uncomfortable about printing so close to the edge of the page, which means that the extreme right-hand edge of your document won't print. Even if the right side does print, the right margin won't balance the left margin. The answer is to move your right margins back in. I've gotten good results with right margins at the 7-inch mark. This solution does seem a bit wasteful of your Macintosh screen space, but I suppose it does work better with disk-based MacWrite, which has those silly oversized scroll bars. You can verify the margins at home by printing with the Tall Adjusted setting on the ImageWriter.

I've heard people complain that their documents looked fine on the screen but didn't print correctly. It turned out that they had columns of figures that they had aligned with spaces (or a combination of spaces and tabs). I don't understand why spaces on the screen don't correspond to spaces on the LaserWriter, but I do know that you can correct this problem by inserting a ruler with appropriate tabs and replacing the spaces with tabs. It's a lot easier to align text with tabs in the first place, so this technique shouldn't present a real problem.

The length of a page, however, *is* a problem. My first encounter with this quirk was when my exactly-two-page document printed as three pages—

```
Note:  This document has margins
set at one inch and four inches.
You'd expect this justified text
to be exactly three inches wide.
Guess again!
```

Figure 1: Although the MacWrite ruler shows this paragraph as being 3 inches wide, it's nearly 3.3 inches when you print it on the LaserWriter.

[New York-12]
This text illustrates the problems with font conversion. Note that New York converted into Times leaves wide spaces between words.

[Times-12]
This text illustrates the problems with font conversion. Note that New York converted into Times leaves wide spaces between words.

Figure 2: With font substitution, New York prints as Times, but with the same spacing as on the screen. As you can see from the lower block of type here, true Times printing has more natural spacing.

[Geneva-12]
This text illustrates the problems with font conversion. Note that Geneva prints in a larger size when converted into Helvetica.

[Helvetica-12]
This text illustrates the problems with font conversion. Note that Geneva prints in a larger size when converted into Helvetica.

[Helvetica-14]
This text illustrates the problems with font conversion. Note that Geneva prints in a larger size when converted into Helvetica.

Figure 3: With font substitution, Geneva-12 (top) converts to Helvetica. Helvetica-12 (center) is a smaller font than Geneva-12. You can use Helvetica-14 (bottom) to preserve screen spacing.

three lines spilled over onto a new page. I've found that the LaserWriter prints about two fewer lines per page than does the ImageWriter, apparently because the LaserWriter, which prints on individual sheets, requires a margin of at least 0.45 inch on all sides. Since the ImageWriter can take continuous paper, it can print right up to the perforation.

Unhappily, the spillover is not something you can easily check at home by printing with an ImageWriter. Simply installing the LaserWriter file and the Choose Printer desk accessory doesn't work, because Choose Printer doesn't let you select the LaserWriter unless one is actually connected on AppleTalk (just plugging one end of an AppleTalk cable into your Macintosh won't fool it, either). It's just something you'll have to take into account. You can insert page breaks, if you like, or just preview the page endings on the screen before printing on the LaserWriter. I happen to prefer the latter approach, since it keeps me from putting a page break in the wrong place by mistake.

The page-length problem is the most serious deficiency of the LaserWriter. Perhaps Apple can come out with a new ImageWriter driver that has an option of printing like a LaserWriter, to give us a true preview capability.

By the way, don't be alarmed when the last page of your document spits out first. The LaserWriter hasn't lost the first pages—it just prints in reverse order so that your output will be nicely collated.

Fonts

One of the nice features of the LaserWriter is its ability to convert Macintosh fonts automatically to its native fonts. The advantage is that the LaserWriter prints its own fonts in very high quality. Based on lines and curves, they can be smoothed in any size; Macintosh fonts, on the other hand, are based on dots, and you have to multiply them to use different sizes (note the crummy appearance on the screen of a font, such as Chicago-14, whose size isn't outlined in the MacWrite Style menu).

Once again, you face a problem. Apple lied to us: New York-12 and Geneva-12 aren't really 12-point fonts. They're a good approximation, given the dot sizes of the screen and the ImageWriter. When the LaserWriter converts them for printing, it tries to keep your lines of text looking as they did on the screen, at the expense of true 12-point printing.

New York converts into Times of the same size, but the line and character spacing is that of New York, not of Times (see figure 2). I typed figure 2 in New York-12 and printed it with font substitution. I then changed the text to Times-12 and printed it again. New York is a wider font, so less fits on a line and the spacing between words is slightly wider (note that an extra word fit on the first line in the Times version). Even more obvious is the spacing difference between lines.

Geneva converts into its LaserWriter counterpart, Helvetica, but it converts into a larger type size in order to keep the same orientation of characters and lines. Note that when Geneva-12 converts (figure 3), the result is quite different from Helvetica-12. It actually converts to Helvetica-14. This variation isn't really a problem if you're using only one font, but if you're mixing Geneva and New York, you'll have a big disparity.

The solution to the problem is to convert the fonts yourself. That way, you know exactly how your documents will look. The LaserWriter fonts are all available as Macintosh fonts, and you can easily install them with the Font/DA Mover (you should be able to get the fonts

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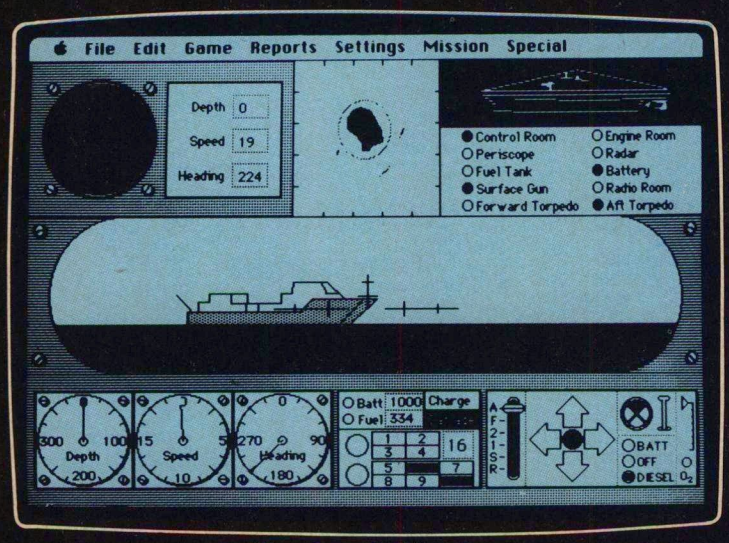

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CIRCLE 233 ON READER SERVICE CARD

TIPS FOR LASER PRINTING

- Use wider margins.
- Watch out for columns.
- Check pagination.
- Convert fonts yourself.
- Have *big* Macintosh fonts available, but be sure characters match in the largest size.
- Decide on smoothing.

from your dealer). In fact, they come in many sizes, including double size for high-quality ImageWriter printing. Helvetica and Times do look a bit cramped on the screen, but they print quite well on the ImageWriter (although words printed in high-quality Times sometimes run into each other). Also, I use Courier instead of Monaco whenever I need a nonproportional font, since it looks nicer and is available in more sizes.

What about fonts that can't be converted—Chicago, London, Venice, and all the fonts from software vendors? The ImageWriter has no problem with them. In high-quality printing, it takes the double-size font, if it exists, and scales it down. Thus, printing in Chicago-12 looks best if you have Chicago-24 in the *System* file (Chicago-24 is available as a public-domain font). The same rule basically holds on the LaserWriter: It uses a larger font and scales it down. The LaserWriter doesn't stop with a double-size font,

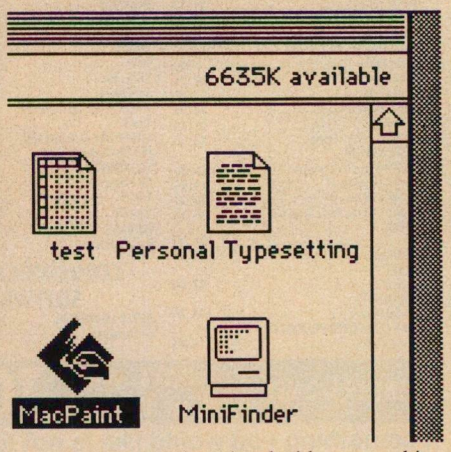

Figure 5: Screen copies printed without smoothing replicate the screen exactly.

though. It takes the *largest* size of the same font and scales it down. Look at figure 4 and see if you can see the dots. I installed London-36 (another public-domain font) before printing. The LaserWriter scaled it down four times, which means it used dots one fourth as wide as the dots on the screen.

The big penalty you pay is speed. This figure took several minutes to process. There's another problem: Since the LaserWriter uses the largest available font, instead of taking the double-size font, the characters may not be the same. I tried to print the Macintosh-icon character (Option-~ in Geneva-10 and Geneva-20) in 10-point size. What I got was the rabbit character (Option-~ in Geneva-24).

Graphics

The LaserWriter can print 300 dots per inch, as opposed to the Macintosh screen's paltry 72 dots per inch, so it can print graphics that look far better than a screen image. MacDraw can take advantage of this high quality, since it connects points with a straight line, but MacPaint draws only dots, 72 per inch. To compensate, the LaserWriter can smooth MacPaint images you've pasted into a MacWrite document, which may or may not be desirable. The illustrations I use most often are screen dumps (made with Option-Shift-3), and I prefer to have them print exactly as they appear on the screen (see figure 5). The dots are always square on the LaserWriter, and they're crisp and black. When the same picture is printed with smoothing (figure 6), you can no longer see individual screen dots. They are cleverly blended into one another to produce smooth, rounded corners, and true diagonal lines without "jaggies." Note, however, that white images on a black background don't smooth well. The edge of a gray area, with either black or white, gets a sort of gradual half-tone effect that could be handy in a painting but doesn't truly represent what the screen looks like. So when I'm printing screen dumps, I turn off the smoothing (with the LaserWriter's Page Setup command). When I'm printing pictures, I leave the smoothing on. ✚

David Dunham is a Santa Barbara, California, programmer who is currently writing four Macintosh programs. He learned about the LaserWriter while editing the newsletter of the South Coast Macintosh Users Group.

This is in London-9. It looks simply awful on the screen, but prints out just fine thanks to a London-36 in the System file.

Figure 4: The LaserWriter scales down fonts that it can't convert. This printed London-9 uses the same dots as London-36 does on the screen.

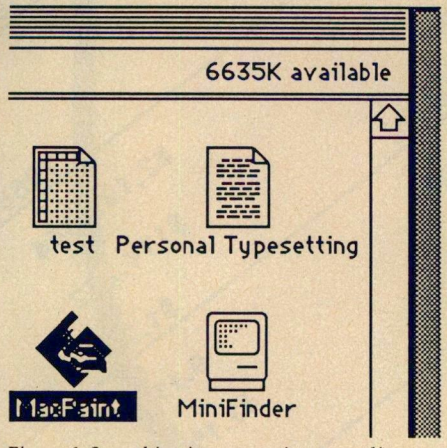

Figure 6: Smoothing improves picture quality at the expense of accuracy.

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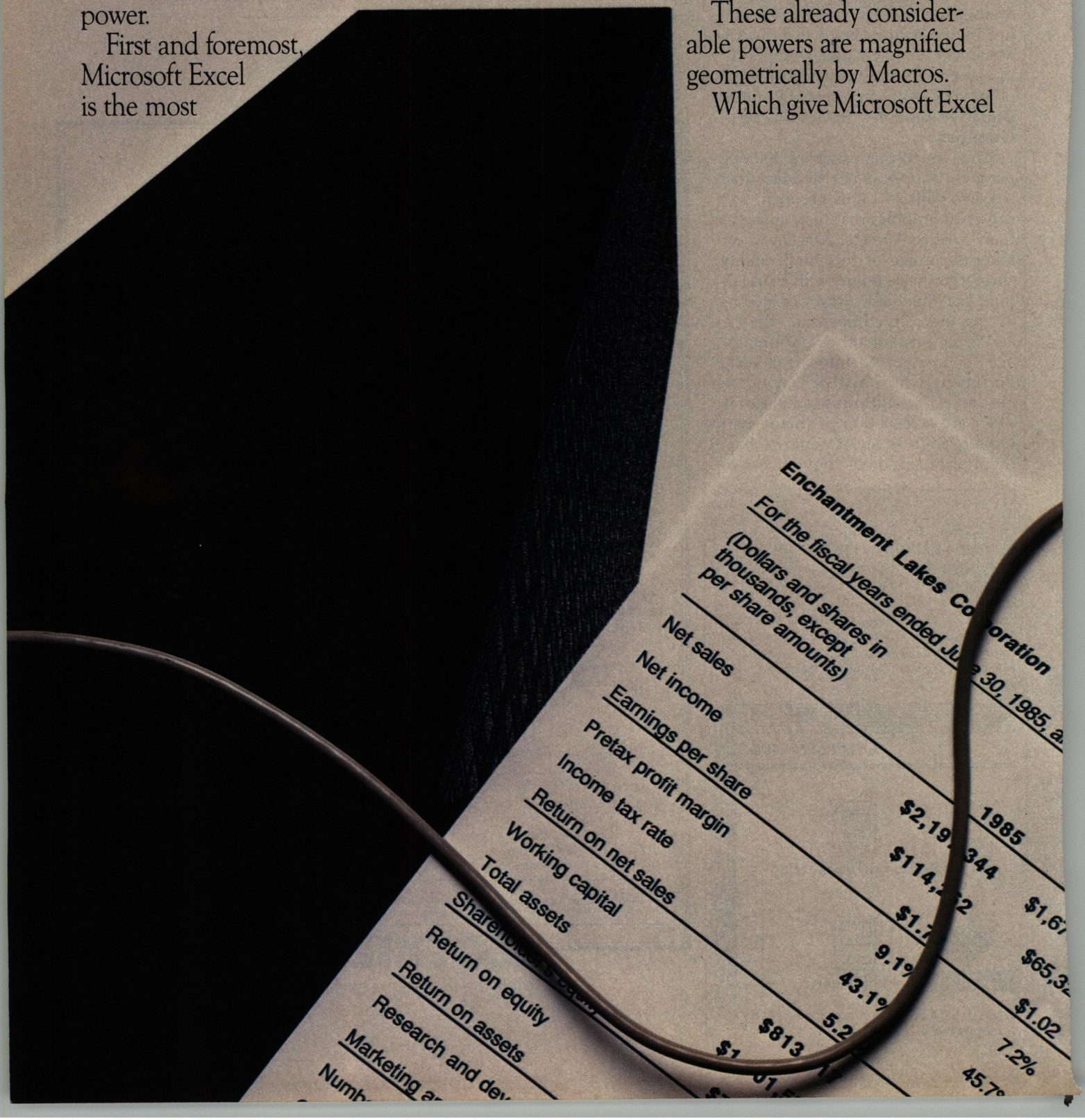

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TIMEBASE

TimeBase Software Design touts its TimeBase as an "integrated software centralizer." Actually, it is a decent calendar program with some nice options and a lot of extras that are either too limited or too much trouble for heavy use.

TimeBase's pretensions to being a software centralizer begin in its calendar program, where you can "link" imported Clipboard information to any appointment. To create a "link pad" of data from another Mac program, you open the other application, copy the information you want to the Clipboard, close the application, open TimeBase, paste the information into the Link Pad window, save the pad, select an appointment from a daily agenda, use the Link Data command, and type in the name of your saved pad.

Theoretically, when you check with TimeBase about an imminent appointment, you can then print out the linked information and take it to your meeting. Practically speaking, however, you're better off printing any item you need from within its own application, making a note in your TimeBase calendar to bring the material with you. The latter method takes less time, and you can format your printed material in a more presentable manner. To truly qualify as a software centralizer, TimeBase would have to allow you to open a document without having to open the related application, the way Hayden's Art Grabber desk accessory lets you get at MacPaint documents any time you need them.

KEVIN O'SHEA

Narrow-Minded Calendar

TimeBase's main feature, an agenda/appointment calendar, is good, if a little narrow-minded at times. On the daily level, you are constrained to half-hour intervals from 7:30 A.M. to 6:00 P.M., with two additional slots labeled Early and Late. Although you can block off time slots after the "main event" for longer appointments, the structure is too limiting. I tried to set up a personal agenda for a week and immediately ran into two problems: I had items that didn't need a specific time of day at all (such as the date this review had to be finished) and a doctor's appointment that needed a block of time reserved before the actual appointment, since it is an hour's drive away.

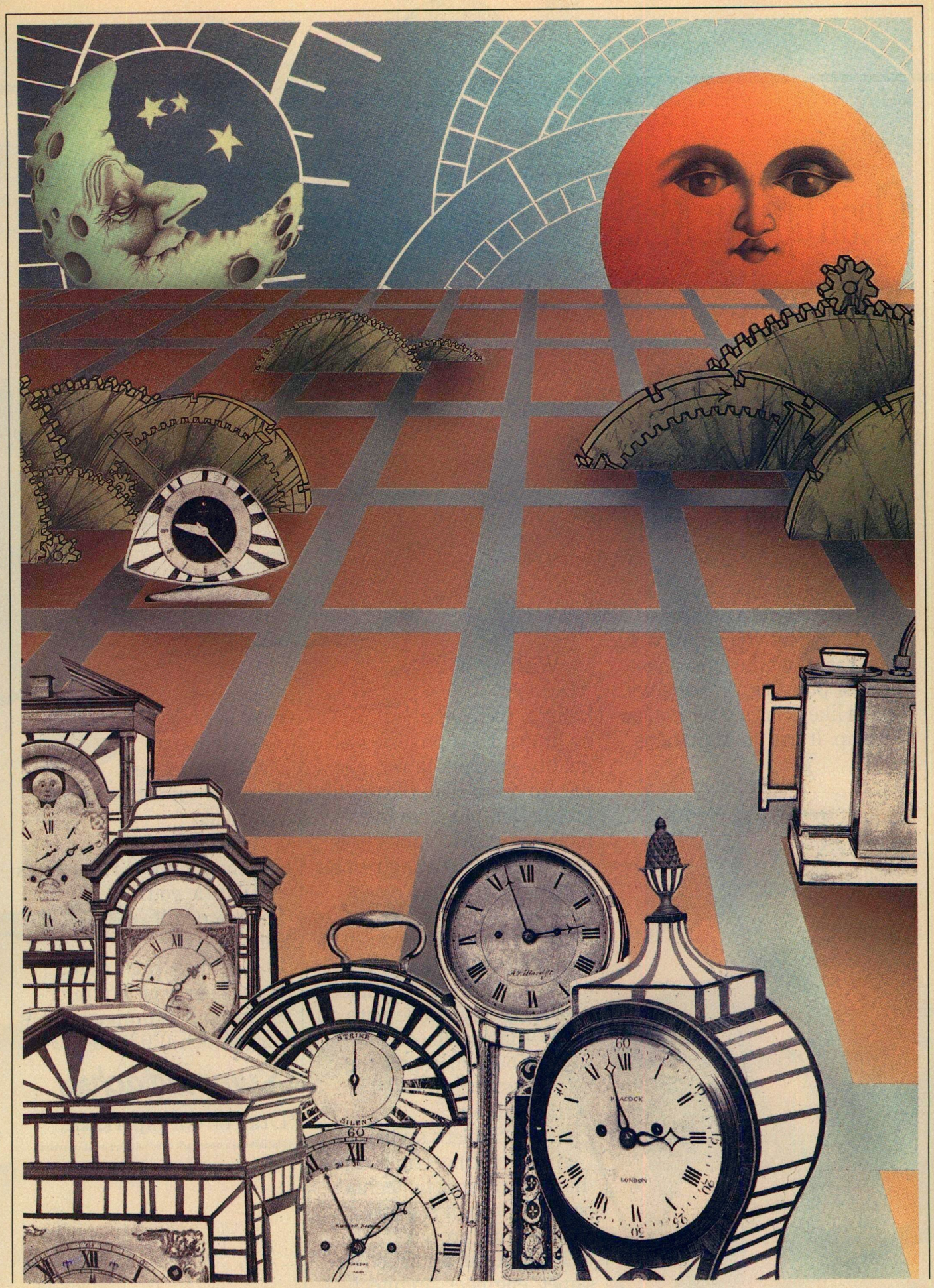
You can view your calendar by year, month, week, or day, and going from one form to another is easy. Appointments can be assigned one of three priorities, and TimeBase prevents you from replacing a high-priority appointment with a lower one. You can easily schedule standing appointments that occur regularly in the same time slot on indicated days, although the process is a little slow. It takes about five seconds to add a standing appointment to the agenda; if you go to your exercise class three times a week for four months, it will take you 4½ minutes to schedule those appointments.

Finding an item in your agenda is a cinch—just type in any identifying word from the appointment description, and TimeBase checks everything from the current date forward. Two other calendar features are Reminders and Agenda Notes. Once you've entered an item in your agenda, TimeBase can remind you about it beforehand. All you have to do is specify the number of days in advance, or the date on which you want the reminder. You make agenda notes on a little notepad that is linked to the calendar day; unfortunately, two of the three sections on the pad are prelabeled as Accounts Receivable and Accounts Payable—not exactly universal categories.

Another TimeBase feature is its Project/Event Manager. Any time you enter a note under this heading in your daily agenda, the program links the note to the Manager. When you open the Manager window, a four-month calendar appears in which any day with a Project/Event note is shaded. Since it does not differentiate among various projects or events, this is not much of a manager. If you could track the deadlines for a single project at a time with the Manager, it would be useful.

Straitjacket

TimeBase includes a small database called the Electronic File Cabinet. The 16 fields are predefined as the basic Name, Address, Home and Business Phones, Account Number, and so on. You can search through the records, view them singly or as a list, and print individual records or the entire file. This module works smoothly, although you may feel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CIRCLE 321 ON READER SERVICE CARD

File Edit Data Engagements Appointment Forms/Letters

Monday, November 4, 1985

Early	Crooked Creek golf course	2	01:00	Luncheon: Regional sales mgrs	2
07:30			01:30		
08:00			02:00		
08:30			02:30		
09:00	Meeting with all managers	1	03:00	Senior sales meeting	1
09:30			03:30		
10:00			04:00		
10:30	Interview: Smythe	1	04:30		
11:00	Interview: Robbin	1	05:00		
11:30	Interview: Martin	1	05:30		
12:00	Interview: Moore	1	06:00		
12:30			Late		

Reminders	Project/Event
Review files on Mr. Tobin	Complete mechanicals of advertisement
Prepare outline for Sales meeting	

Clear Day PersonalSchedule Prev Next

Figure 1: The daily agenda in TimeBase is divided into half-hour segments. You can assign each appointment one of three priority levels.

File Cabinet

Last Name: Bell
First Name: Donna
Account Number: HT-5611
Date: 10/19/84
Company: True Color Printing
Item 1:
Address: 34 Oakland Park Blvd.
Item 2:
City: Hollywood
State: FL
Zip Code: 33036
Item 3:
Home Phone: 305-555-1061
Business Phone: 305-555-7210
Item 4:
Comments: Call as a last resort. Prices are ridiculous!

Accept Cancel Done Record 1 Delete Prev Next

Figure 2: The Electronic File Cabinet is TimeBase's database; the fields shown here are predefined, and you cannot change them.

straitjacketed if you've worked with any other Mac database.

TimeBase's remaining feature is simply a collection of forms and letters that are MacPaint documents. The documentation suggests you enter the needed text within MacPaint (we all know how tedious that is) or print the forms with the blanks to be filled in later.

The program's documentation is easy enough to understand, although its grammar, punctuation, and spelling leave a lot to be desired. If you can swallow the phrase "integrated software centralizer," you should be able to handle things like "You may interact these features with themselves."

I don't think that any of TimeBase's functions, except for its basic calendar, are really worthwhile, and its price is a little high for a calendar-only program. You should also consider the inherent problem of any calendar program: To be really useful, it has to be immediately available, which means dedicating your Mac to it for a major portion of the day. No calendar program is that good! ✚

Sharon Aker is a free-lance journalist specializing in Macintosh applications. Her books include the recent MacPack *from Ashton-Tate and the forthcoming* Microsoft BASIC on the Mac *from Scott, Foresman.*

PRODUCT INFORMATION

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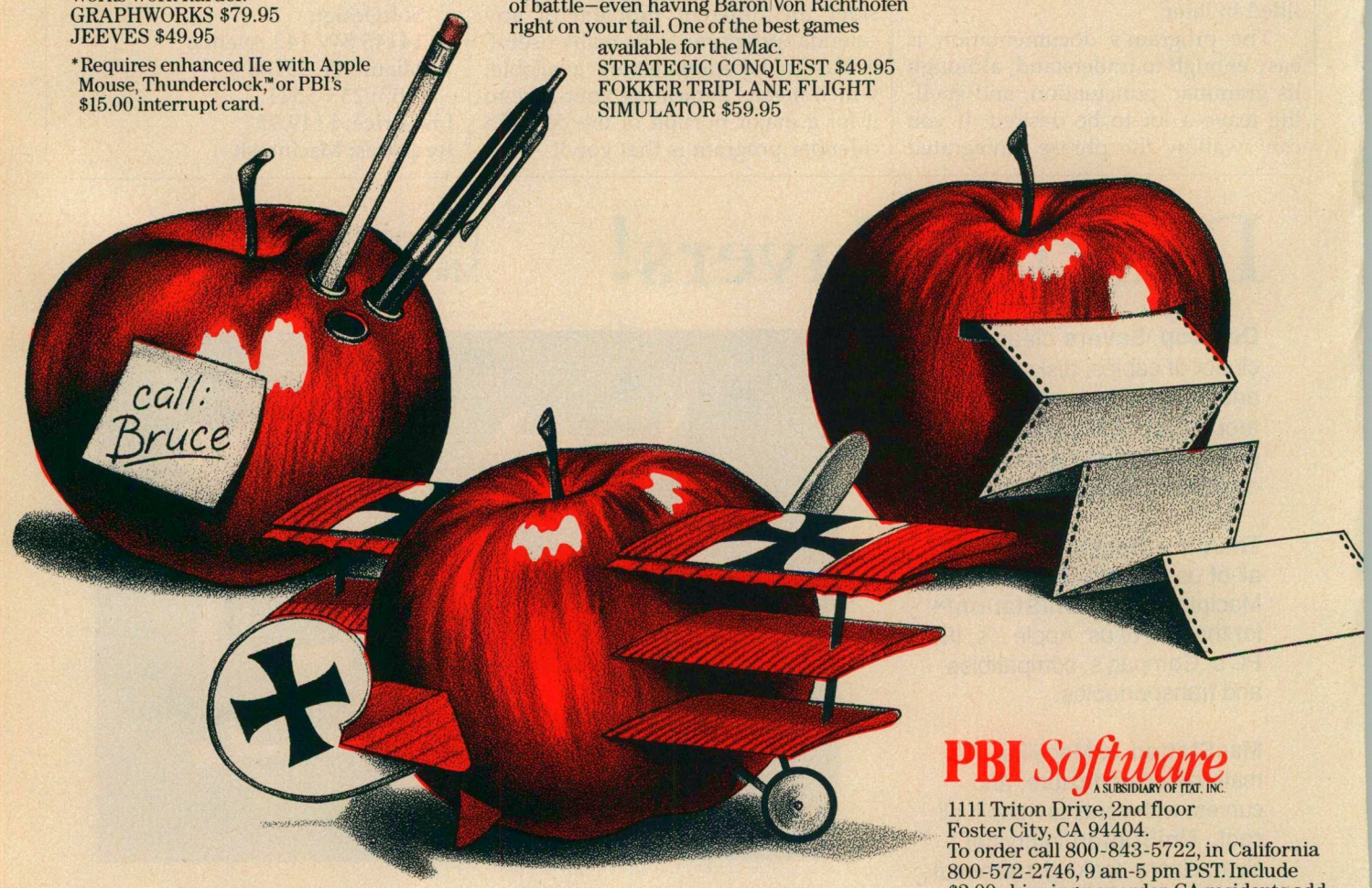

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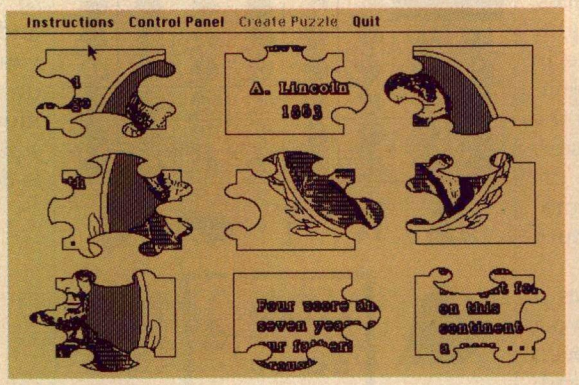
CIRCLE 242 ON READER SERVICE CARD



PUZZLING PAINTINGS

Two programs that turn MacPaint pictures into puzzles

MacPaint is a brilliant program that has inspired a whole genre of accessory software such as clip-art and special-effects disks. This article takes a look at two programs that turn MacPaint images into puzzles.

JIGSAW-PUZZLE DELIGHT

MasterPieces is a jigsaw-puzzle-making program originally released as MacPuzzle by Industrial Computations, Inc. With it, you can use any MacPaint document as a picture that becomes a jigsaw puzzle (five sample pictures come with the program).

At your command, MasterPieces breaks the picture into puzzle pieces on the screen and scatters them randomly. You reassemble the picture by dragging the pieces with the mouse. Find two pieces that you think will fit together, move them next to each other, and click the mouse button. If your pieces match, MasterPiece snaps them together.

Once pieces are locked together, you can move them around the screen as one piece. As with a traditional jigsaw puzzle, pieces can go anywhere—next to, over, and under each other. In fact, you can inadvertently place one piece over another, thus hiding it from view. One improvement over traditional jigsaw puzzles is that you don't have to worry about losing any of the pieces. The program is simple to use and provides enough options to make it challenging and enjoyable for children and adults alike.

The Control Panel menu lets you determine each puzzle's level of difficulty. You can set the number of pieces to 9, 25, 49, 100, 169, or 196 (see figure 1, above).

The Environment menu gives you five options. The Fitting Tolerance option determines how close together you must place the pieces before they'll be accepted as a match. You have three choices: sloppy, medium, or tight. Display Pattern offers you a chance to see the pattern of pieces overlaid on the picture before the pieces are scattered. When the picture is broken up, each piece of the puzzle is numbered sequentially from top to bottom, left to right. Show Piece Numbers lets you work on the puzzle with these numbers visible.

Figure 1 (above): With MasterPieces' Control Panel menu, you can set each puzzle's difficulty level.

The Background Color option lets you choose a black, white, or gray background, and Sound Effects offers a musical accompaniment as you scatter your pieces and reassemble them.

Finally, the Scoreboard allows you

to play with MasterPieces competitively (against yourself or others) by keeping track of your correct and incorrect attempts at matching pieces.

Those who think this is kid stuff should try 196 unnumbered pieces, with the fitting tolerance set to tight!

If you can't complete a puzzle in one sitting, you have three alternatives. You can stop and exit from the program, you can opt to have MasterPieces automatically assemble the puzzle, or you can save the incompletely assembled puzzle and return to it another time.

If someone you know also has a copy of MasterPieces, you can save a puzzle just after the pieces have been scattered and send it to your friend. The challenge will be greater than usual, since that person hasn't seen the original picture intact.

Putting together the pieces of a jigsaw puzzle develops hand/eye coordination and shape recognition. Young children or handicapped people can begin with simple images, broken into nine pieces, and progress, at their own pace, to more complicated images and then more pieces. The Numbered Pieces option offers a unique way to teach a young child how to count.

Since you can use any MacPaint document, you can select educational images for your puzzles. Geography can be more enlivened, for instance, when a map is presented as a jigsaw puzzle. Pictures of plants and animals may help motivate science students.

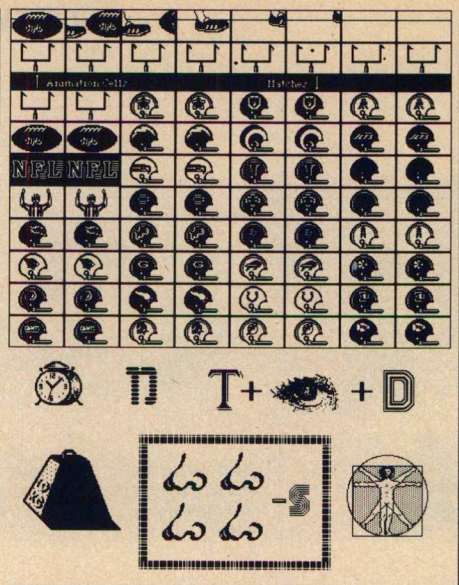


Figure 3: A complete puzzle as seen in MacPaint. The top 16 boxes are for the animation bonus. I found it easier to edit one of these puzzles than to start from scratch, especially when I wanted to incorporate animation.

CLASSIC CONCENTRATION

If jigsaw puzzles aren't your forte, then how about a game to challenge and improve your memory? The popular game of Concentration has been adapted for the Macintosh—wonderfully—with MacMatch.

MacMatch forces you to use your skills of concentration to match gray squares and uncover a hidden rebus puzzle. You begin by opening one of nine puzzles. Play consists of selecting two boxes at a time by clicking on them with the mouse. Two images are revealed, and if they don't match each other, they quickly disappear. Play continues until you find a pair.

When the images do match, they slide away to reveal a small part of a word puzzle (rebus) hidden below (see figure 2). If you think you can solve the rebus, you select the Solve option, and a window appears. You then type the answer. Spelling is important here. Unfortunately, the program makes no provision for typing or spelling errors—one wrong letter and you haven't solved the puzzle. If you succeed in solving the rebus, you do not necessarily win the game. You must continue until all the pairs of squares are matched, and the winner is determined by a scoring system.

Your puzzle frame can be 2 × 2, 4 × 4, 8 × 8 or 16 × 16 squares. The game accommodates one to four players and offers three levels of play: student, standard, and expert. Some puzzles have bombs—match a pair of bombs and you lose points. One puzzle has a delightful bonus. When you match a particular pair, you're rewarded with a brief animation of a football being kicked over a goal post.

As you play the game, the program updates all players' scores in boxes below the puzzle. At the end of a game, you get a complete breakdown of each player's score. The scoring rewards accuracy and speed. For a maximum score, you must match as many pairs as possible with as few misses as possible, avoid matching bombs, avoid using hints, solve the puzzle early, and play quickly.

Create Your Own

Creating your own puzzles is a challenge, but it's worth the effort. You can use the blank frames that are provided as MacPaint documents, or you can edit an existing puzzle.

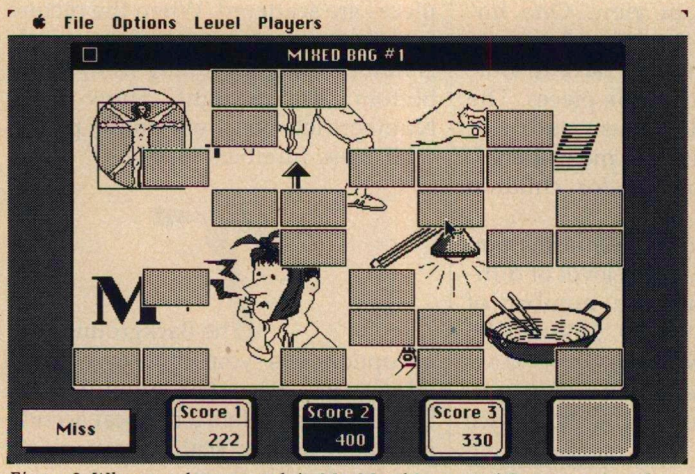


Figure 2: When two boxes match in MacMatch's game of Concentration, they slide away to reveal a small part of a word puzzle (rebus) hidden below.

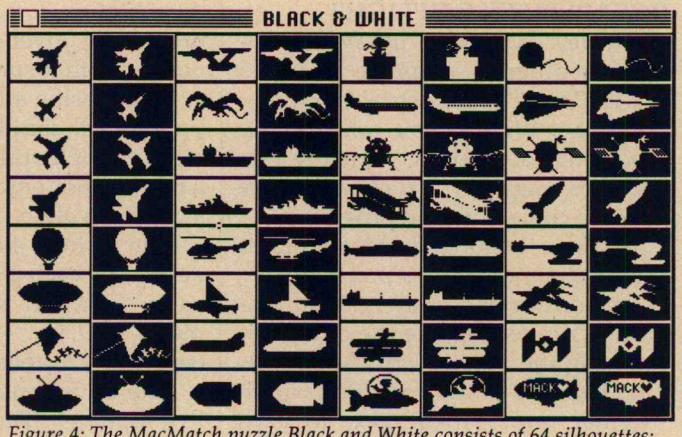


Figure 4: The MacMatch puzzle Black and White consists of 64 silhouettes: 32 black on white and 32 white on black. Completing the puzzle provides a wonderful way for you to train your eyes to recognize shapes and subtle, distinguishing details.

The variety of puzzles that come on the disk demonstrates MacMatch's potential for self-improvement and education.

Bombs and animation can be part of the games you design yourself. I found it easier to edit one of the program's puzzles than to start from scratch, especially when I wanted to incorporate animation (see figure 3).

The variety of puzzles that come on the disk demonstrates MacMatch's potential for self-improvement and education. The puzzle called Black and White consists of 64 silhouettes: 32 black on white and 32 white on black (see figure 4). It is a wonderful way to train your eyes to recognize shapes and subtle, distinguishing details. Signs of the Times has you matching road signs, and FamousPeople links first names to last names. Children can learn associations by pairing images that are related to each other, rather than identical, as illustrated in Mixed Bag. Here the word *California* is a match to an outline of the state, and the box containing 2 × 6 matches the box with 12 in it. Solving a rebus is another learning experience. Since the number of boxes in a puzzle can vary, the games are effective for any age group. For creative parents and teachers, the possibilities are endless. ✚

Roberta Schwartz is a free-lance computer-graphics artist. She teaches at the New School in New York City and is coauthor of a book on Apple computer graphics.

PRODUCT INFORMATION

MasterPieces
Hayden Software Company, Inc.
600 Suffolk Street
Lowell, MA 01854
(800) 343-1218
List Price: $39.95

MacMatch
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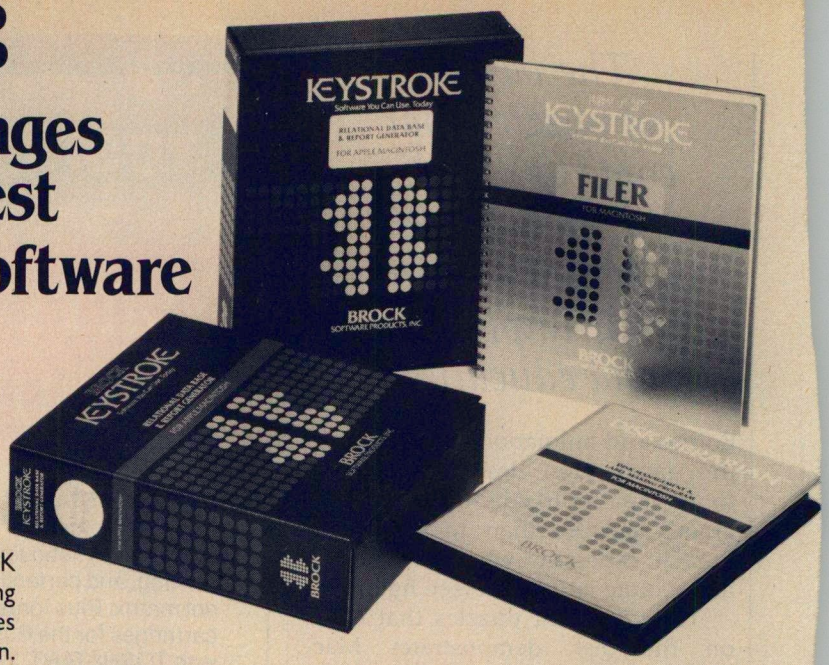

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MAKING TRACKS WITH MAC-TRACKS

One labor-saving device I've greatly missed since switching from an IBM PC to a Macintosh is the macro. Macros are multiple keystrokes that a special utility program assigns to a single key or key combination. With macros, common command sequences and frequently used text strings (such as your name and address) can be reduced to the press of a single key.

Now, with the desk accessory Mac-Tracks by Assimilation, you can create macros for any application that allows you to use desk accessories. Your macros can include keystrokes, mouse-selected commands, mouse-operated controls such as scrolling, and even the use of MacPaint tools. Since you create a different macro file for each application, you can tailor your macros to the needs of each program. And, although Assimilation doesn't say so, you can use Mac-Tracks to create "desktop macros."

Installing Mac-Tracks is easy. Three steps, in fact, will do the job. First you copy the Mac-Tracks Installer program onto the target application disk. Next you make sure that the target disk is the start-up disk. Finally, you double-click on the Installer icon and answer the questions that follow. Mac owners with floppy-disk-based systems must repeat this installation procedure on every application disk; hard-disk owners need to install Mac-Tracks only once (on their master System file). To remove Mac-Tracks, you use the Installer program or one of the generic desk-accessory movers now available. Because of a peculiar design flaw, however, using the Installer is a little confusing: you must proceed through most of the program as if you were installing Mac-Tracks. Only at the last possible moment are you asked if you want to remove Mac-Tracks instead.

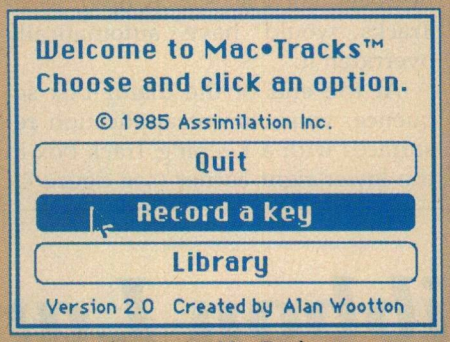

Figure 1: After opening Mac-Tracks, you are presented with three options. To record a new track, click on the middle button.

With Mac-Tracks available on the apple menu, you're ready to roll. As a simple example of how the desk accessory works, let's say you want to convert a frequently performed mouse-controlled activity—making interim saves, for example—into a keyboard command. To start, you select Mac-Tracks from the apple menu instead. A box appears that contains three choices. You can record a "track," which is what Assimilation calls macros; open the Library file, which contains a complete list of tracks for the current application; or return to the application (see figures 1 and 2).

If you click on the Record a Key option, a series of dialog boxes appears. The first box asks you to indicate what key combination you want to assign to your track. You always assign tracks to one or more keys in

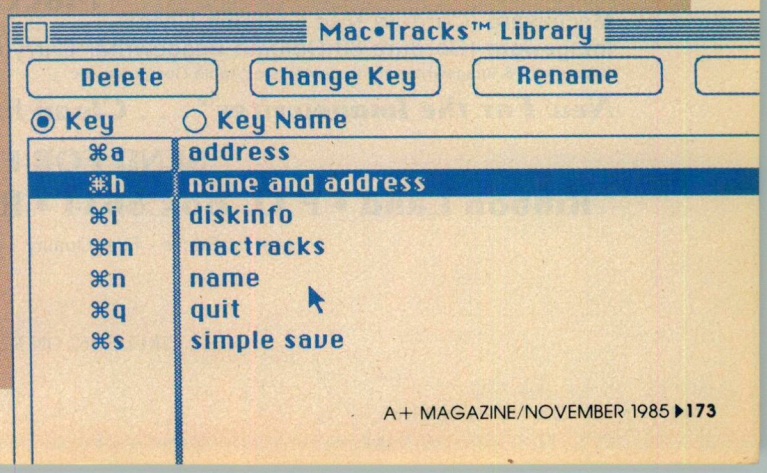

Figure 2: If you choose the Library option in the opening dialog box, you will get a list of all the tracks recorded for that application. While in the Library, you can change a key assignment or description or delete a track altogether.

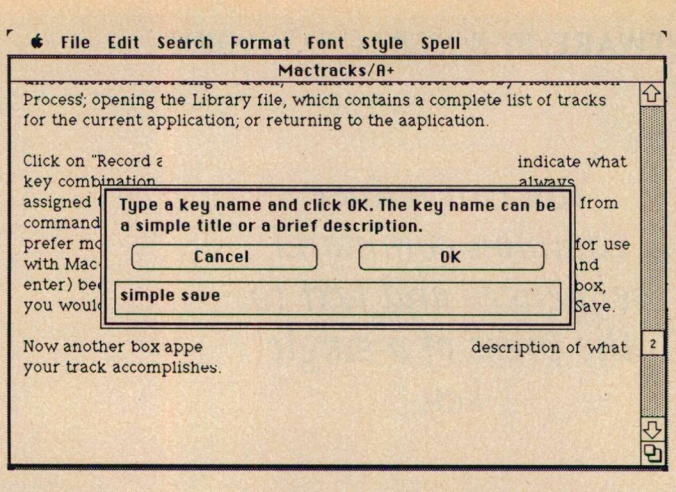

Figure 3: After choosing the key combination, you must write a simple description of what the track does. This description is stored in the Library to remind you of the functions of your tracks.

combination with the ⌘ key, so you end up with anything from ⌘-f to ⌘-Shift-Option-p (for those who prefer more complex finger exercises). After choosing the key combination, you must write a simple description of what the track does. It is stored in the Library to remind you of the functions of your tracks (see figure 3).

Almost all keys are available for use with Mac-Tracks—the few that are not (such as Backspace, Return, and Enter) beep when you try to use them. In our example, you might press ⌘-s as a mnemonic for Save. Had you chosen a key combination that already had a track assigned to it, the program would have informed you of the fact and given you the choice of choosing another key combination or erasing the existing track. If you'd chosen a command equivalent already used by MacWrite, however, such as ⌘-c (Copy), Mac-Tracks would have automatically overriden it.

At the end of the dialog-box sequence, your current application resurfaces with a Keeping Track box in the lower right corner (see figure 4). From this point on, unless you click on one of the special options, Mac-Tracks records everything you do. In our example, you pull down the File menu and choose Save. (If you make a mistake, such as pulling down the Edit menu instead of the File menu, the Start Over button erases what Mac-Tracks has recorded so far and lets you try again.) You then click on the Quit and Save option, the Keeping Track box disappears, and your new track is saved and ready to use again. It's that simple.

You have probably realized by now that one important use of Mac-Tracks is to assign keyboard equivalents to menu items that don't already have them or to replace ones that you find less than intuitive (such as Paste's ⌘-v). Indeed, if you would rather keep your fingers on the keyboard than have them grope for the mouse, you'll find Mac-Tracks indispensable for this reason alone.

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enter) beep when you try to use them. So, in response to the second box, you would press command-S as an easy to remember mnemonic for Save. Confirm your choice of keys in the next box. (Had you chosen a key combination which already had a track assigned to it, you would have been greeted by a dialog box giving you the choice of trying again or deleting the previous track. Had you chosen an existing menu equivalent, however, such as Copy's command-C, the track would automatically override it.)

Now another box appears that asks you to write a brief description of what your track accomplishes. The primary purpose of the description, which is stored in the Library, is for later reference. Even if you have a flawless memory, however, you can't leave the description blank: if you do, the program promptly returns you to the application. After completing your description, a final box tells you that you're all set to record your track -- click on the box to make it go away, and your current application resurfaces with a new addition, a "Keeping Track" box in the lower right corner.

Keeping Track

- Pause Recording (Start Over)
- Record w/o Doing
- Free Hand Mode (Quit+Save)

Figure 4: While you are actually recording a track, the small "Keeping Track" window is displayed in the lower right corner. It offers several options, plus the opportunity to start over if you make a mistake.

more than that, though. For letter writing, for example, I have assigned my name to ⌘-n and my address to ⌘-a, so I'm no longer embarrassed to discover after I send a letter that I misspelled my own name. Also, with MacWrite, I now have keyboard commands that let me select my favorite fonts and font sizes with one track; open the desk accessories I use most often; and create common formats. Indeed, virtually any procedure that you do more than once can be reduced to a time-saving single keystroke.

Handy for MacPaint

Mac-Tracks' great virtuosity and power is most clearly demonstrated not with textual or numerical applications, but with graphics programs such as MacPaint. By clicking on Free Hand Mode in the Keeping Track box, you can record complex sequences that use any of MacPaint's tools. Be sure you are in the Free Hand mode before you begin—using the normal Record mode with MacPaint can produce unexpected results.

I use Mac-Tracks with MacPaint to perform such tedious tasks as rotating selected text to make labels that read sideways. Since I always draw with the left at the top, I used to have to select Rotate three times to get the labels aligned correctly. Now, I select the text with the Marquee, type ⌘-r, and I'm done.

You can, of course, record far more complex procedures (such as the creation of an entire drawing), but you reach a point where cleverness overwhelms efficiency. For one thing, a complex, freehand track takes up a lot of disk space, and, for another, the longer the track, the more likely you are to make a fatal mistake during the recording process.

Instead of actually drawing complex pictures with Mac-Tracks, you're better off storing the drawings in the Scrapbook and then using Mac-Tracks to open the Scrapbook, copy the drawing, and paste it into your document. This method is, in fact, a simple and elegant way to get the

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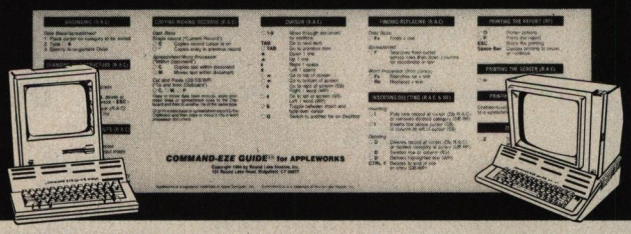

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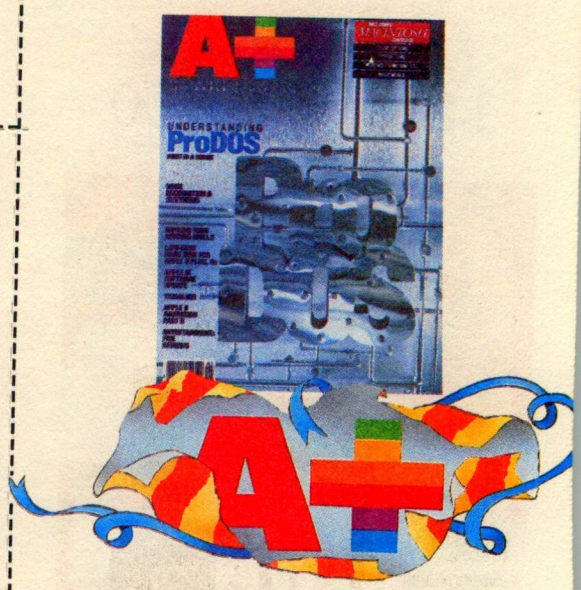

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You can also use Mac-Tracks to record tracks on the desktop. Unfortunately, desktop tracks don't work automatically—you have to initiate them just like any other track by presing a ⌘ key combination. Nonetheless, they are a powerful way to automate your desktop. You can, for example, create tracks that open the applications on your disks or empty the trash. If you have a hard disk such as a Hyperdrive, desktop tracks are especially useful. You can use them to open a disk volume and start virtually any application, all with a single keystroke. When you're recording most desktop tracks, however, remember to use the Record without Doing option in the Keeping Track box—actually opening an application terminates the desktop track file (so that the application track file can open), resulting in the loss of your desktop track. The same problem arises, of course, if you try to record an application track that incorporates the Quit command, and the solution is also the same.

Despite all its excellent points, Mac-Tracks is not without its flaws. For example, two of the dialog boxes you must negotiate before beginning to record a track have their OK and Cancel buttons first right and left, respectively, then left and right—a perfect trap for the unsuspecting. In addition, the Keeping Track box often has a difficult time keeping track of itself; it often becomes a mere shadow of its former self and frequently gets confused about what kind of pointer it should display. Fortunately, none of these visual aberrations seem to affect the proper functioning of the program. The documentation, which is short and to the point, as is characteristic of manuals from Assimilation, could be even shorter for some things (such as its overly complex installation instructions) and more to the point for others.

All in all, however, Mac-Tracks' virtues far outweigh its faults. Indeed, as a final, can-you-top-this test, I recorded a track that called up Mac-Tracks itself so that I didn't have to use the mouse to get to the Keeping Track stage. Then I used that track to start recording another track that was nothing but a series of yet other tracks. The program's response: no problem. My advice: run, don't walk, to the nearest store that stocks Mac-Tracks. ✚

Editor's Note: Our research at A+ has revealed that Mac-Tracks does not work with Jazz and several other programs, so be sure to test it out at your dealer's with the application you intend to use it with. Jazz users and others who are looking for a more powerful macro product should refer to "Thoughtware" on pages 205–210 for a preview of the new Tempo macro software.

Robert Eckhardt, formerly vice president of Simon & Schuster's Electronic Publishing Group, is a New York freelance writer.

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MacTips

Suggestions from our readers

KEYBOARD CHARTS

What do you do if you want a quick reference source for the location of the graphic characters in the Cairo and Taliesin fonts? Apple's Key Caps desk accessory does not indicate their location: you have to use trial and error or create your own chart.

You will use MacPaint to create both charts. Open MacPaint and pull down the Shortcuts window from the Goodies menu to see a drawing of the keyboard. Take a screen shot of the window by typing ⌘-Shift-3. Exit from Shortcuts by clicking on Cancel, and close the window. Open screen 0 and erase all the graphics but the keyboard (see figure 1). Now carefully erase the words on the keyboard with the eraser (it's easier in the FatBits mode).

Now use the selection rectangle to select the keyboard. Holding down the Shift and ⌘ keys, point to the keyboard and drag the image until it fills the entire window from left to right (see figure 2). Be sure to label the function keys on the keyboard image. It is also a good idea to copy the image to the Scrapbook for future use. I pasted three blank keyboards onto one MacPaint page (Save As: Keyboard) for frequent use.

You can begin to create your chart now. In the space above the enlarged keyboard image, begin typing your graphic characters (see figure 3) in the order of the keys on the keyboard (a-s-d-f, etc.). Type only one row at a time, placing one space between the characters. Select each symbol with the lasso and place it in the corresponding position on the keyboard. Do one keyboard in uppercase, another in lowercase, and a third with the Option key. Be sure to title each keyboard.

Once you have created your master keyboard chart, you can photocopy it. It makes a nice handout for fellow Macintosh enthusiasts. I had it enlarged on a photocopier on a sheet of 11 × 17-inch paper and use it as a wall chart for quick reference.

An additional use is to create your own large copy of the Key Caps keyboard layout, which enables you to delete the Key Caps desk accessory to free up disk space for working.

Michael L. Hale
Grand Rapids, MI

TWO SECONDS TO OPEN

Some of us have complained about the 512K Mac having limitations when used with a RAMdisk—mainly that there's not enough room to have two applications and the system all on the RAMdisk and still be able to use those two programs. Well, that's somewhat true, but until one- or two-megabyte Macintoshes become cheap enough for all of us to buy, there is a way to use MacPaint, MacWrite (or two programs of similar size), and the system on the RAMdisk. The speed increase is incredible.

You need the following: a 512K Mac, the Minifinder from Apple (which is available on the latest System-upgrade disk), Font/DA Mover (also on the upgrade disk), RamDisk from Assimilation, DAM (Desk Accessory Mover, available in the public domain), Diskinfo (public domain), and Clock (public domain).

Initialize a blank disk and put the System on it, along with Font/DA Mover. Run Font/DA Mover and remove all desk accessories except the Scrapbook and all fonts except the following ones: Chicago-12; Geneva-9, -10, -12, and -14; New York-12; and Monaco-9.

Now you can remove Font/DA Mover from the disk and replace it with DAM. Using DAM, install the two desk accessories Clock and Diskinfo onto the System disk (I recommend putting Diskinfo on all of your disks that contain a System file).

The next step is to remove DAM from the disk and replace it with the Minifinder, Ramdisk, MacPaint, and MacWrite. Run Ramdisk and follow the prompts to create a start-up disk and a 316K RAMdisk. The program will ask what programs you want on the RAMdisk and show a menu of

Figure 1: Erase all the graphics but the keyboard.

Figure 2: The keyboard fills the entire window.

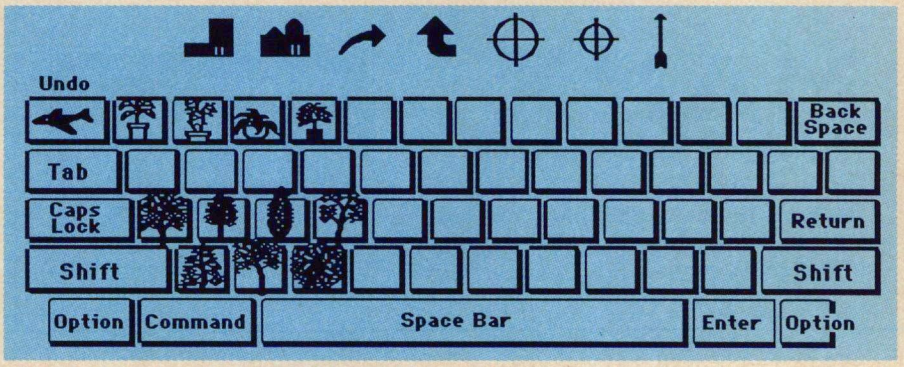

Figure 3: The keyboard with some of the graphic characters

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Manx support includes one year of computer tracked updates and technical telephone support.

AZTEC C68k-d (Developer's System) **$299**

AZTEC C68k-d provides a less expensive development system for programmers on limited budgets. AZTEC C68k-d includes C compiler, 68000 Macro Assembler, Linker, debuggers, editor, toolbox support, run time libraries (object), sample programs (source), and a 600 page manual.

AZTEC C68k-p (Personal System) **$199**

For students and professionals doing serious non-commercial work. Includes C compiler, Linker, run time libraries, sample programs (source), debugger, and editor. Restricted license.

C-TREE Database (Aztec object format) **$149**

C-TREE Database (Object + Source) **$390**

FOR THE APPLE II

AZTEC C65/DEV (Developer's System) **$299**

This C compiler and software development system comes with C compiler, 6502 assembler, SHELL, overlay linker, UNIX I/O, Screen, and Graphics libraries, editor, utilities, and support for ProDos.

AZTEC C65 ..... **$199**

C compiler, 6502 assembler, Linker, libraries, Apple DOS 3.3 support.

AZTEC C65 Personal ..... **$ 99**

C compiler and development system. Restricted license.

MANX

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TX 4995812

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201-530-7997 (NJ)

TECH SUPPORT - 201-530-6557

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CIRCLE 189 ON READER SERVICE CARD

available programs on your disk.

Install only the following: 1. the System (70K)—not the whole System Folder, but just the System; 2. the Minifinder (4K); 3. MacWrite (70K); and 4. MacPaint (60K). Now run the Minifinder to install the MacPaint and MacWrite icons on the Minifinder.

Installation is now complete. What about the Finder and ImageWriter driver in the System Folder, you ask? Don't I need those on the RAMdisk too? You don't need the Finder while using the Minifinder and Diskinfo, and you can go to another disk with the Finder on it from the Minifinder if you do need to. Further, you don't need the ImageWriter driver file to print MacPaint files, and you can go to another disk with the ImageWriter file on it to print MacWrite files.

Now shut down the system and start up with the newly configured start-up disk. You should get the Minifinder, with icons for both MacWrite and MacPaint. First eject the start-up disk and then double-click on the MacWrite (or MacPaint) icon. In about 1½ seconds, you will be in MacWrite. A way to familiarize yourself with the new configuration is to go to the Apple in the upper left corner and access Diskinfo. You will get Diskinfo on the right side of the menu bar and a window that shows all on-line disks, the number of files in each, the amount of memory in use on each disk, the amount of available memory on each disk, and the amount of RAM in use.

Looking at the RAMdisk now, you can see that you have seven files using 204K, with 104K free. This much free memory allows you to open any size MacPaint file or any size MacWrite file from a separate disk. If you always save the programs back to the separate disk, you will have enough room on the RAMdisk to work with them and even juggle between them.

If no disks are on-line, it never takes longer than two seconds to exit from or open either MacPaint or MacWrite, and switching between them is instantaneous. If you want to print something fancy with all the fonts, just insert a disk with a complete System file into a drive, switch

MacTips

to that drive from the Minifinder, and click on the Finder from the Minifinder menu. Highlight the files to print and choose Print from the File menu.

Bill Banche
Sebastopol, CA

MACWRITE LINE SPACING

Have you ever wished for greater control over the line spacing in MacWrite? If so, you will find this method useful for those times when you want line spacing greater than single and less than double. It relies on the principle that blank spaces, although invisible, increase in size horizontally and vertically as you change their point size.

Let's say that you're working with a 12-point font and you want spacing slightly greater than single space between two lines. Select any blank space on the lower line and use the Style menu to change its size to 14 points. The entire line will move down slightly to accommodate the 14-point space character. To revert to normal single space, select the entire line and change it back to 12 points.

Didier Giovannangeli
Quebec, Canada

THE LAST HESITATION

Some of you may have noticed that the ImageWriter printer pauses before printing the last line in a document. To cut down the time on this pause, press the Select button, and the printer will immediately print the line. Then press it again so that the printer will advance the paper so you can tear it out.

Dan Lee
Sioux Falls, SD

DITTO MASTERS

Being a teacher, I often use my Macintosh to produce ditto masters. To produce the sharpest copies, I have found that using standard quality and taking the ribbon out of the ImageWriter works best. The ImageWriter page-thickness setting should be placed at 2. More than 100 copies can be run off, reproducing all the text and diagrams needed.

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Lima, Peru

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Disk Drive Controller II+, //e ... 45

GENERIC HARDWARE
16K Ram, II+ ... 39
Z-80 Card, II+, //e ... 42
Cooling Fan, 2 outlets, Surge Protect, II+, //e ... 29
Joystick, Fire button, (Spec. II+ or //e) ... 29
Computer Case, II+ ... 59
Replacement Keyboard, II+ ... 69
Case w/built-in Numeric Keypad ... 119
RF Modulator ... 19
Power Strip, Surge Protect, 6 Outlets ... 19

ADVANCED LOGIC SYSTEMS
CPM Card, II+, //e ... 249
Z Engine II+, //e ... 129
Smarterm II, II+, //e ... 129

AST
Multifunction Board, //e ... 169

CH PRODUCTS
Mach II Joystick (Spec. II+, //e, //c) ... 38
Mach III w/fire button (Spec. II+, //e, //c) ... 45
Paddlestick Spec. II+, //e, //c 38

CALIFORNIA COMP. SYS.
Clock Calendar ... 89
7711 Async Ser. Interface ... 99

COMPUTER ACCESSORIES
Power Dir. P22 ... 89

COMREX
A-B Switch Box (spec. par/ser ... 59
Centronics M/M or Serial M/M Cable ... 22.95

CURTIS MANUFACTURING
Emerald Surge Protect ... 52
Ruby Surge/Filter ... 79

CHECKMATE TECHNOLOGY
MultiView 80/160 ... 215
MultiRam IIe w/128k ... 169
MultiRam IIe w/256k ... 249
MultiRam C w/256k ... 269
MultiRam C w/512k ... 329

KENSINGTON MICROWARE
System Saver Fan, II+, //e ... 65

KOALA TECHNOLOGIES
Koala Pad Plus w/sft. //e, //c ... 69
Muppet Learning Keys w/SFT for //e, //c ... 55
Gibson Light Pen ... 149

MICROSOFT
SoftCard II ... 279
Premium SoftCard //e ... 269

MICROTEK
Dumpling-GX ... 79
Magnum 80me 80 Col 64K for //e ... 115

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ORANGE MICRO
Grappler +, II+, //e ... 89
Buffered Grappler +, II+, //e ... 149
Bufferboard II+, //e (Spec. your Interface) ... 79
Serial Grappler +, II+, //e ... 89
Bufferpak ... 115
Bufferpak/Ser. Grappler Combo ... 179
Orange Interface, II+, //e ... 59
Hotlinks for //c ... 65
Grappler C for //c ... 99

PRACTICAL PERIPHERALS
GraphiCard (Graphics int.) ... 79
PrinterFace ... 59
SeriALL (RS 232) ... 109
Switchport for //c ... 89
Pro Clock (spec II+, //e,//c) ... 109
Microbuffer II, spec. printer
16K spec. par/ser ... 99
32K spec. par/ser ... 115
Microbuffer II+ (both par & ser)
16K ... 135
32K ... 145
64K ... 165
Microbuffer In-Line External
32K (spec. par/ser) ... 189
64K (spec. par/ser) ... 219
128K (spec. par/ser) ... 259
256K (spec. par/ser) ... 289
Microbuffer/E Internal for Epson Printers
16K Parallel ... 115
32K Parallel ... 135
64K Parallel ... 175
8K Serial ... 115
16K Serial ... 125
32K Serial ... 145
DES 2000 Data Encryption System ... 299

QUADRAM
eRam 80 (80 Col, 64K, //e) ... 109
Multicore w/OK II+, //e ... 179
Multicore w/256K ... 299
Ext. Multi function Card for II+, //e ... 189
Pro Dos Clock/cal II+, IIe ... 75
Buffered Serial Adapter 64K, II+, //e ... 119

SUNCOM
II+/IIe Joystick Adapter ... 5.75

TITAN SYSTEMS
64K Ram Card ... 159
128K Ram Card ... 199
Accelerator //e, II+, //e ... 219

VIDEO 7
RGB Adapter for, //c ... 105
RGB 80/64 for //e ... 135
Slot 7 RGB II+, //e ... 119

VIDEX
Ultraterm (132 Col) ... 199
Lower Case Chip ... 25
Visicalc Preboot ... 45
Apple Writer II Preboot ... 22
Ult. Visicalc Preboot ... 54
Ult. Applewriter Preboot ... 24

WICO
SmartCard w/Mouse (specify II+ or //e) ... 149
SmartCard w/Ball (specify II+ or //e) ... 149

HARDWARE for MACINTOSH

KENSINGTON MICROWARE
Surge Protect ... 45
Starter Pack ... 79

KOALA TECHNOLOGIES
MacVision Digitizer ... 179
MacKAT ... 149

MICROSOFT
Macenhancer ... 189

MITSUBA
Disk Drive for Mac (Year Warranty) ... 259

MOUSE SYSTEMS
A+ Optical Mouse (//c, Mac) ... 89

NOVATION
Smart Cat Plus 1200 Baud w/SFT ... 299
2400 Prof. Modem w/SFT ... 519

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EXP-550 LQ (spec.Par/Ser) ... 419
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TOSHIBA
P1340 LQ (spec.Par/Ser) ... 559
P351 LQ, Par ... 1199
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AMDEK
V300 Green ... 132
V300A Amber ... 139
Color 300 (Comp) ... 235
Color 500 (RGB Comp) ... 339
Color 600 Hi/Res RGB ... 409
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MODEMS

HAYES
Smartmodem 300 ... 145
Smartmodem 1200 ... 385
Smartmodem 2400 ... 619
Micromodem //e w/SFT ... 145
Smartmodem 300 w/SFT for //c ... 165

NOVATION
Apple CAT II ... 189
212 Apple Cat Upgrade ... 219
212 Apple Cat System ... 349
Expansion Module ... 29.95
J-CAT ... 89

PROMETHEUS
Promodem 1200 Ext. ... 299
Promodem 1200A w/Software for II+, //e ... 289
Transportable Promodem 300C for //c ... 149

ZOOM TELEPHONICS
Zoom Modem //e Apple ... 125
Zoom Modem //e Plus ... 139

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APPLE-MATE 1200 MODEM

An intelligent 1200/300-bps modem card, the Apple-Mate 1200 has resident communication software that allows the modem to operate in the computer as soon as you have installed it. The modem also works with popular disk-based software via its resident Hayes AT Command Structure and is compatible with the Bell 212A and 103 industry standards. Among the modem's automatic features are auto-dial, auto-answer, auto-speed adaptation, and auto-parity adaptation. It also has call-progress tone recognition via its built-in speaker. *(List Price: $299)*
Requires: Apple II Plus or IIe

Cermetek Microelectronics, Inc.
1308 Borregas Avenue
P.O. Box 3565
Sunnyvale, CA 94088-3565
(408) 752-5000

CIRCLE READER SERVICE NO. **500**

MODEM488

A new product in IOtech's line of IEEE 488 bus interfaces, the Modem488 provides remote communications with IEEE bus devices over ordinary phone lines. It can not only control instrumentation at remote locations but can also function as a modem interface for an IEEE bus controller. As a controller, the Modem488 receives high-level HP-85-compatible commands at 110, 300, or 1200 bps from any host computer equipped with a modem. It provides complete bus control, including pass and receive control, secondary addressing, binary block transfers, and serial and parallel poll, and has a Macro mode that lets users store and execute an entire control sequence with one command. The product also features auto-dial, auto-answer, and password protection. *(List Price: $1195)*

IOtech, Inc.
23400 Aurora Road
P.O. Box 21204
Cleveland, OH 44121
(216) 439-4091

CIRCLE READER SERVICE NO. **501**

REGATTA COMPUTER COVERS

Cover Craft has introduced Regatta, a new line of fabric computer covers. Each cover's features include a built-in disk-storage pocket, a pencil holder, and a zippered wallet for storing the cover when it is not in use. The covers are designed around a nautical motif and are made of a cotton/polyester-blend material that is treated to resist stains, moisture, and wrinkles. Sizes are available for all popular computers and related equipment, and available colors are sand with navy trim and navy with sand trim. *(List Price: $21.95–$34.95)*

Cover Craft Corporation
540 North Commercial Street
Manchester, NH 03101
(800) 644-3555

CIRCLE READER SERVICE NO. **502**

ESSEX

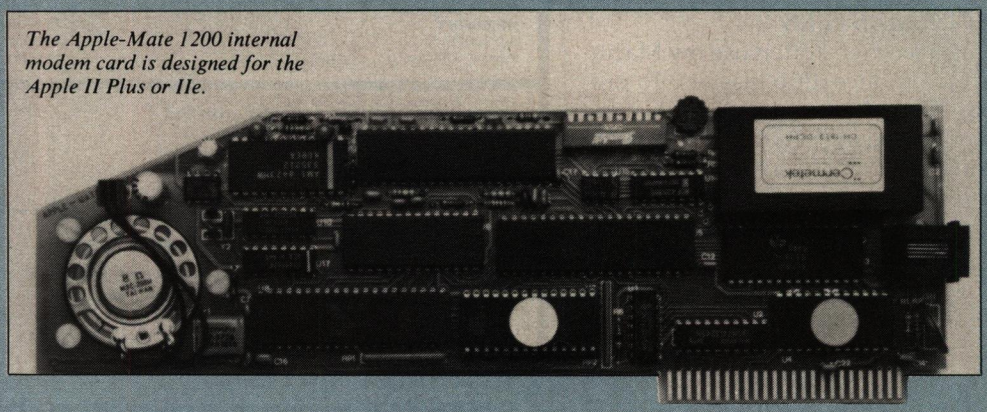
The second in Synapse Software's series of Electronic Novels, Essex is an intergalactic search-and-rescue mission that takes place aboard a starship traveling through deep space. Surrounded by a crew of fellow adventurers, the player has to rescue the one scientist who can prevent the imminent destruction of the universe. The text adventure is published as a hardcover book that sets the scene and introduces the main characters. The program uses Synapse's parser system, which can recognize 1200–1500 words. *(List Price: $44.95)*
Requires: Apple II Plus, IIe, or IIc; 48K RAM; one disk drive

Synapse Software
A Division of Brøderbund Software
17 Paul Drive
San Rafael, CA 94903-2101
(415) 479-1170

CIRCLE READER SERVICE NO. **503**

Essex, an intergalactic search-and-rescue mission from Synapse Software

The Modem488 is a new product from IOtech.



The Apple-Mate 1200 internal modem card is designed for the Apple II Plus or IIe.

MAC LISA II SERIES

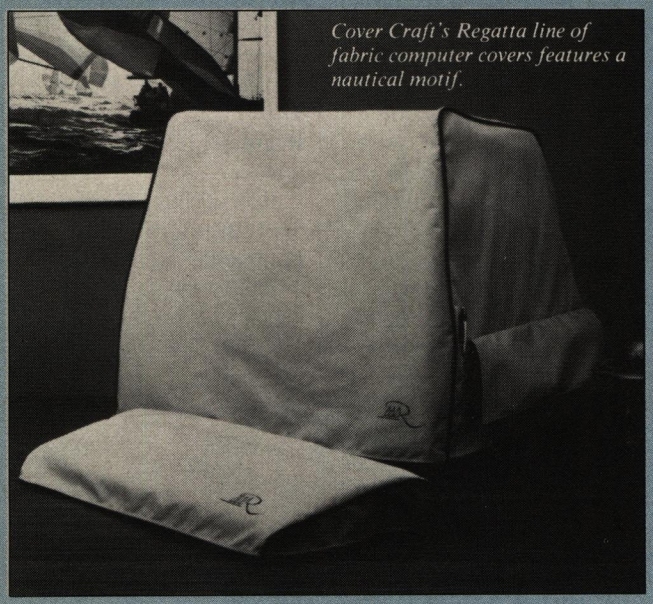
McBALL

McBall, a high-performance trackball that is interchangeable with the AppleMouse, is now available from Interfirm Systems. McBall features a Drag button, which lets users "drag" text and graphics without holding down a button, and a Click button that responds to any software written for use with the AppleMouse. McBall can reside on either side of the keyboard or can be hand-held and is easy for physically handicapped people to use. *(List Price: $89.95)*

Requires: Macintosh, Macintosh XL/Lisa, or Apple IIc; Apple II, II Plus, or IIe with AppleMouse interface card

Interfirm Systems Corporation
110 Pioneer Way
Building H
Mountain View, CA 94041
(415) 964-4464

CIRCLE READER SERVICE NO. **504**



Cover Craft's Regatta line of fabric computer covers features a nautical motif.

MAC

MAX PRINTER BUFFER

Designed to work with the Macintosh and a printer, Max is a 256K printer buffer that is expandable up to 1 megabyte. Users can send text and graphics to the printer via Max, which holds the data and sends it to the printer as it becomes free. Max has two modes of operation—it can automatically pause between pages for single-sheet paper, or it can work continuously. A visual indicator shows free space available in the buffer. The Max printer buffer is compatible with AppleTalk and with various dot-matrix and letter-quality daisy-wheel printers. *(List Price: $549)*

Requires: Macintosh

Dataspace Corporation
205 Riviera Drive
Unit 9
Markham, Ontario
Canada L3R 2L6
(416) 474-0113

CIRCLE READER SERVICE NO. **505**

The McBall trackball is interchangeable with the AppleMouse.

Max is a 256K printer buffer for the Macintosh.

HARDWARE

SMT INTERFACE CARDS

Systems Manufacturing Technology (SMT) has developed several interface cards for Apple computers.

Printech II is a parallel printer interface that can function correctly with any application that requires the Apple Parallel Printer Card. The interface works with most printers that have a 7- or 8-bit parallel interface, is compatible with Pascal and CP/M, and has a data-transmission rate of 5000 characters per second. The board's on-board PROM enables users to custom program it.

The Sertech is a serial-interface card that is designed to accommodate a variety of serial-interface printers and modems. The card also supports terminals, plotters, and most other RS-232C-type peripherals. Sertech is intended for use with the Apple II, II Plus, or IIe computers and is fully compatible with all Apple operating systems and software.

Designed for the Apple IIe, Vidtech 80/64 is a plug-in 80-column video board that also provides 64K of additional RAM. The card is fully compatible with the Apple Extended Text Card and so is compatible with all Apple software and operating systems. The card also supports double-high-resolution graphics. *(List Price: Printech II, $129; Sertech, $109; Vidtech 80/64, $285)*

Requires: Apple II, II Plus, or IIe

Systems Manufacturing Technology, Inc.
1145 Linda Vista Drive
San Marcos, CA 92069
(619) 744-3590

CIRCLE READER SERVICE NO. **506**

FASTALK DESKTOP MODEMS

Universal Data Systems (UDS) has released two Hayes-compatible desktop modems—the FasTalk 300, which operates at 0–300 bits per second (bps), and the FasTalk 1200, which operates at 0–300 or 1200 bps. The modems feature automatic dialing and answering and automatic selection of pulse or tone dialing; full-duplex operation; a self-test mode; and indicator lamps to show the modems' status. The modems can also automatically route to the modem speaker nondata signals that are on-line during a data call, and they offer full call-progress monitoring of dial tone, busy, ring, and connect signals. *(List Price: FasTalk 300, $345; FasTalk 1200, $525)*

Requires: RS-232 serial interface

Universal Data Systems
5000 Bradford Drive
Huntsville, AL 35805-1953
(205) 837-8100

CIRCLE READER SERVICE NO. **507**

CIRCLE 317 ON READER SERVICE CARD

▶ FINGERPRINT C, MAC/C EMULATOR

Thirdware Computer Products has introduced the FingerPrint C, the latest product in its line of FingerPrint interface cards. An internal board for Apple IIc computers, the FingerPrint C features a print-screen key for one-touch screen dumps and a main-menu option system that offers easy access to 30 command options. Options include double hi-res, lo-res, and 40- or 80-column screen dumps; and 90-degree-rotated, double-width, and inverse graphics. The card is super-serial-compatible and works with any software for the IIc.

The company has also introduced the Mac/C Emulator, an external graphic translator that lets users connect many Centronics-compatible, parallel-interface printers to serial-interface Macintosh or Apple IIc computers. A built-in microprocessor converts serial commands to parallel, enabling users to print any output from Macintosh or IIc software. *(List Price: FingerPrint C, $149; Mac/C Emulator, $129)*

Requires: Apple IIc or Macintosh

Thirdware Computer Products
Precision Software, Inc.
4747 N.W. 72nd Avenue
Miami, FL 33166
(305) 591-4480

CIRCLE READER SERVICE NO. **508**

▶ SOFTWARE

▶ DEVELOPER DISK #1

Designed to help users develop software for the IIe and IIc computers, Developer Disk #1 is a double-sided disk containing the Nite Owl Run Time program (NORT), which adds several enhancements to the ProDOS operating system. Enhancements include the Quick Index, an auto menu program selector that lets users run programs, type text files, or index ProDOS subdirectories; PACKER, a program that condenses high-resolution-graphics; GETSTRING, a program that provides commands for entering and editing Applesoft string data; and SETDATE, which lets users set the ProDOS date register. The disk also contains several demonstration programs and a tutorial describing how to use ProDOS and Applesoft commands and NORT *(List Price: $19.95)*

Developer Disk #1

Requires: Apple IIe or IIc

Nite Owl Productions
5734 Lamar
Mission, KS 66202
(913) 362-9898

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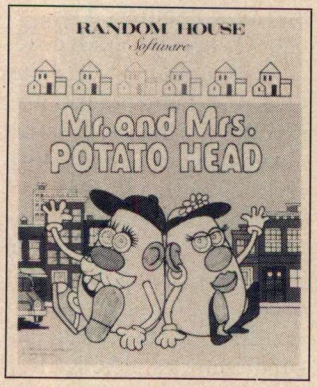
CIRCLE 348 ON READER SERVICE CARD

SERIES

▶ RANDOM HOUSE SOFTWARE

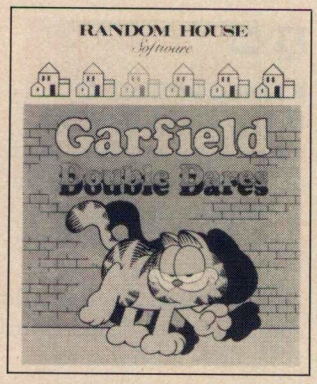
Random House has released several new educational programs for children and has also introduced a new series of software designed to entertain and instruct adults. The children's titles include four featuring the Peanuts gang, two that feature Garfield, one featuring Mr. and Mrs. Potato Head, a text adventure game, and a brain-teasing program.

Snoopy Writer, designed for children ages 6 to 11, helps them develop their creative-writing skills and teaches the fundamentals of word processing. Charlie Brown's 1-2-3's teaches children ages 3 to 7 counting and number recognition. Peanuts Math Matcher uses games of memory and concentration to help children practice adding, subtracting, multiplying, and dividing. The program offers two levels of play. Typing is a Ball, Charlie Brown develops not only keyboard recognition, but also typing skills. Children can practice typing while the Peanuts gang play basketball, baseball, and bowling. Players can determine levels of difficulty and speed of play.

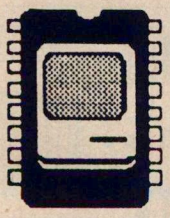


Random House has released several educational programs featuring such characters as Mr. and Mrs. Potato Head.

In Garfield Double Dares, designed for ages 8 to adult, Garfield challenges players in a dictionary duel of words that tests vocabulary skills. The program offers three levels of play and includes a word bank of more than 600 words. Designed for children ages 10 and up, Garfield Eat Your Words tests word skills and recall, along with players' knowledge of such things as animals, famous people, cities, and occupations.



Mr. and Mrs. Potato Head lets children 3 to 8 years old make their own potato heads and bring them to life with computer



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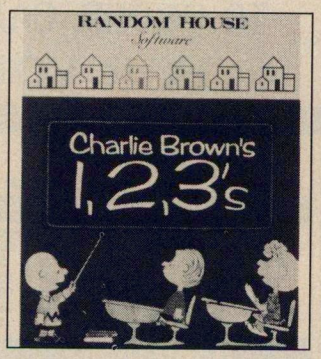

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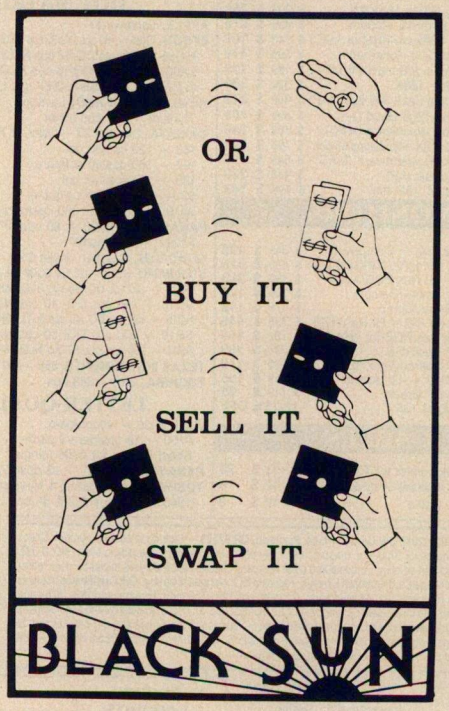

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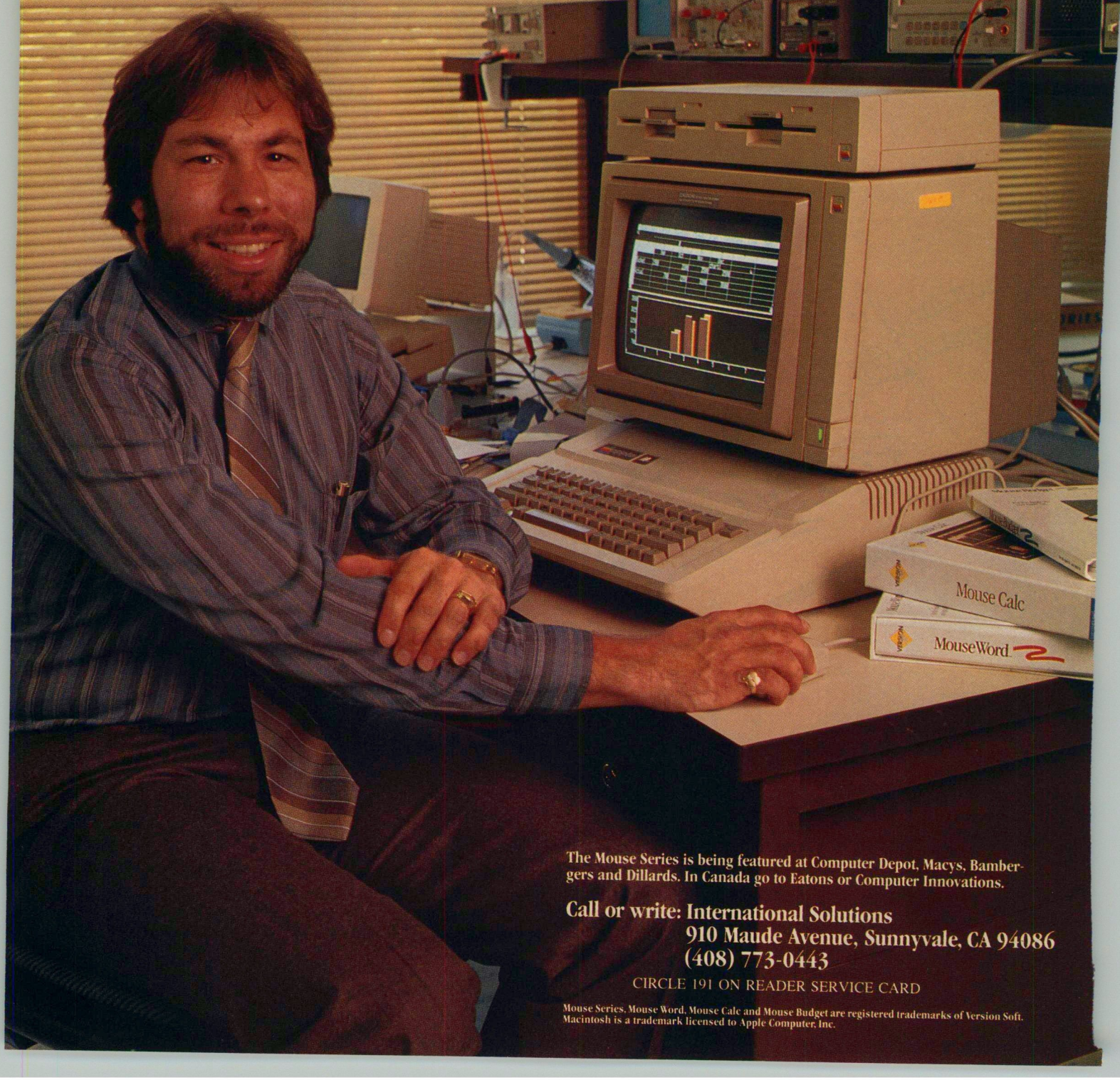
8Z375

WE ASKED THE EXPERT

We went to the inventor of the Apple *II*, the man who helped launch the personal computer revolution, Steve Wozniak. We wanted to know if the Mouse Series,™ our new family of software for the Apple *II*, could bring new excitement to the first industry standard:

"The Mouse Series™ is the natural evolution of Apple II software. The customer of today needs power... that's a given. The Mouse Series lets you get over that learning curve... quickly. It brings many of the advantages of the Macintosh to the Apple II." Steve Wozniak

With Mouse Calc™ you can really make your worksheet play... and in less time than you ever thought possible. Avoid the draft the second time... every time with Mouse Word,™ an exciting word processor that has communications built in. And for personal use, make sense out of your dollars with Mouse Budget,™ a home financial package that can grow with you... and your family.



The Mouse Series is being featured at Computer Depot, Macys, Bambergers and Dillards. In Canada go to Eatons or Computer Innovations.

Call or write: International Solutions
910 Maude Avenue, Sunnyvale, CA 94086
(408) 773-0443

CIRCLE 191 ON READER SERVICE CARD

Mouse Series, Mouse Word, Mouse Calc and Mouse Budget are registered trademarks of Version Soft. Macintosh is a trademark licensed to Apple Computer, Inc.

Requires: Macintosh
CompuCRAFT
6818 S. Magnolia Court
P.O. Box 3155
Englewood, CO 80112
(303) 850-7472
CIRCLE READER SERVICE NO. **530**

II SERIES

▶ SPELLWORKS FOR APPLEWORKS

Advanced Logic Systems has introduced Spellworks, a low-cost spelling checker for use with AppleWorks' word-processing program. Spellworks contains approximately 90,000 words on one disk and can check ten words per second. *(List Price: $49.95)*
Requires: Apple IIe or IIc, 128K RAM, AppleWorks
Advanced Logic Systems, Inc.
1195 East Arques Avenue
Sunnyvale, CA 94086
(408) 730-0307
CIRCLE READER SERVICE NO. **531**

Juki's LetterPrint program for Macintosh users

MAC

▶ JUKI LETTERPRINT

Juki Office Machine Corporation has announced LetterPrint, a software kit that enables Macintosh users to use Juki's 6100 and 6300 letter-quality printers. The LetterPrint kit contains an easy-to-read instruction manual, an optional connector cable, and a software disk that can drive Macintosh word-processing functions directly onto Juki printers. *(List Price: $75; with cable, $95)*
Requires: Macintosh, Juki 6100 or 6300 printer
Juki Office Machine Corporation
299 Market Street
Saddle Brook, NJ 07662
(800) 932-0590, or:
23844 Hawthorne Blvd.
Suite 101
Torrance, CA 90505
(800) 325-6134
in CA (800) 435-6315
CIRCLE READER SERVICE NO. **532**

MAC

▶ PC7800 MACINTOSH SOFTWARE

Honeywell has introduced a version of its PC7800 software to link the company's large-scale computer systems with Macintosh computers. Macintosh users can now access Honeywell's productivity software operating on GCOS 8-based DPS 8, DPS 88, and DPS 90 computers. The software emulates function keys, attributes, and special-purpose switches operable on Honeywell VIP7800 terminals and transfers timesharing files. The new version of PC7800 accepts character input from the Macintosh keyboard or from a remote information processor through a communications network. The software also features printer support and the ability to modify or save configuration parameters. *(List Price: one-time license fee/personal computer, $295)*
Requires: Macintosh
Honeywell, Inc.
P.O. Box 8000/A-79
Phoenix, AZ 85066
(602) 862-6140
CIRCLE READER SERVICE NO. **516**

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Marsh Creek Corp Center
Lionville, Pennsylvania 19353

CIRCLE 123 ON READER SERVICE CARD

ZOOM MODEM SALE!

Plug-in modem card for the Apple II, II+ and IIe. ZOOM Communications Software on Disk-DOS & ProDOS Compatible. Made in USA — 2 year warranty.

Optional-Netmaster Software for file transfer with auto-error correction, text editing, more . . . **$10** additional.

ZOOM Networker Starter Modem 89.00

Auto-dial Auto-answer 300 baud Modem . . 139.00

FREE! With any modem, $200 worth of database subscription & connect time. (Dow Jones, NewsNet or Delphi)

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760 San Antonio Road
Palo Alto, CA 94303
Call **TOLL FREE 800-227-8292,**
in CA call **415-424-800**

CIRCLE 269 ON READER SERVICE CARD

MAC

MAC-FAIR

Designed for the Macintosh, Mac-Fair offers five fair-type action games—Shooting Gallery, Dart Throw, Shell Game, Strongman, and Beer Tent—on one disk. The disk also contains a central Mac-Fair program that allows access to its six subprograms—the five games and an information subprogram called About Mac-Fair. Each game requires a different skill, and the computer rewards improvement of that skill with prizes of increasing quality. At the end of each game, players can play again, return to Mac-Fair's central program, or return to the Finder. *(List Price: $39.95)*

Requires: Macintosh, Microsoft BASIC, Version 1.0 or 2.0

Brownbag Software
8208 N. University Street
Peoria, IL 61615
(309) 692-7786

CIRCLE READER SERVICE NO. **521**

MAC

RAGS TO RICHES FOR MACINTOSH

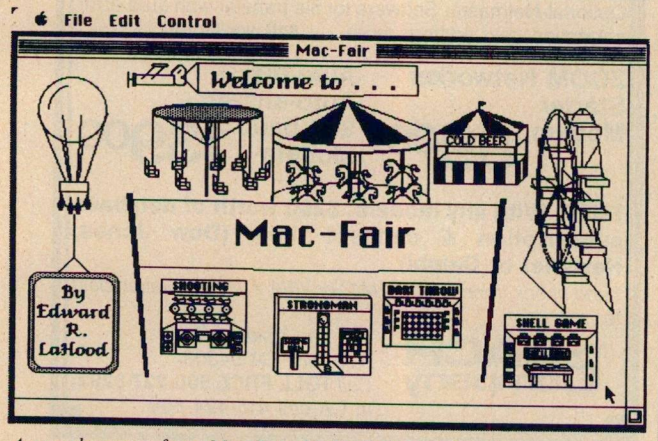
The Rags to Riches series of small-business accounting software is now available for the Macintosh. The new modules include Macintosh Ledger, Macintosh Receivables, and Macintosh Payables, and all take full advantage of the computer's 32-bit processing power and ease of operation. Features of the modules include built-in help, automatic registration of date and time of all recorded data, either vertical or horizontal printouts, support for all ImageWriter and LaserWriter printing features, integration of all modules via the Mac Switcher, the ability to operate in the AppleTalk network, and support for all Macintosh and third-party hard disks. Each module can handle up to 5000 accounts/10,000 transactions.

Chang Labs is also offering three free Rags to Riches "How to Computerize" books entitled *The Retail Business Management Guide, The Service Business Management Guide,* and *A Personal Finance Guide. (List Price: $199.95 per module)*

Requires: Macintosh

Chang Labs
5300 Stevens Creek Blvd.
San Jose, CA 95129-1088
(800) 972-8800
in CA (800) 831-8080
(408) 246-8020

CIRCLE READER SERVICE NO. **522**



A sample screen from Mac-Fair, by Brownbag Software

MAC

THE DESIGNER SOFTWARE SERIES

Designed for use by architects, engineers, and other building-design professionals, Volumes I and II of The Designer Software Series contain structural-analysis and design templates for wood-frame projects.

Volume I of the series provides templates for the determination of gravity loading criteria (live and dead loads) and the design of wood rafters, floor joists, support posts, and various beam configurations (including simple span, cantilever, and fixed-end beams, with concentrated and distributed loads). The worksheets automatically calculate loading, bending moments, shear stresses, and deflection, as well as the required and actual section modulus, cross-sectional area, moment of inertia, and bearing support area for individual members. In addition, the scrapbook file contains reference information indicating weights of building materials and allowable stress values for various species and grades of wood.

Volume II of the series provides templates for the determination of lateral loading criteria (wind and seismic loads) and the design of shear walls, shear transfer details, and hold-down connections. The scrapbook file contains reference data indicating allowable stress values for various horizontal diaphragm and shear-wall configurations, as well as many commonly available metal connectors. *(List Price: Volume I, $150; Volume II, $125)*

Requires: Macintosh, Multiplan

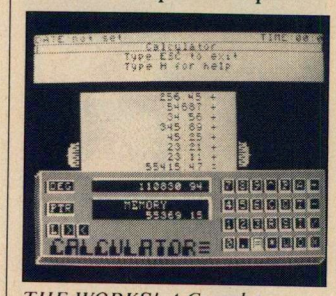
Sheehan and Associates
3509 Ocean Drive
Oxnard, CA 93030
(805) 985-5318

CIRCLE READER SERVICE NO. **542**

SERIES

THE WORKS! HOME SOFTWARE

A home productivity package, THE WORKS! A Complete Collection of Home Software features 13 integrated modules all on one side of one disk. The modules represent all the most popular home applications and are divided into four categories—Organizers, Tools, Learning, and Arts. Among the modules are a Graphics Painter, Typing Teacher, Music Composer, Letter Writer, Stock Portfolio, Calendar Pad with Index Cards, Calculator, Math Drills, Conversions, and Finance Record-Keeper. The pack-



THE WORKS! A Complete Collection of Home Software

age has step-by-step commands and constant on-screen prompts, requires the use of only six keys, and provides program integration via windows. *(List Price: $49.95)*

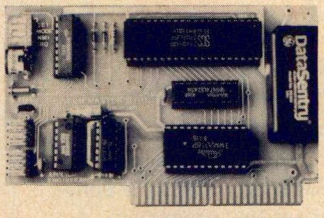
Requires: Apple II, II Plus, IIe, or IIc; 64K RAM; one disk drive

First Star Software, Inc.
18 East 41st Street
New York, NY 10017
(212) 532-4666

CIRCLE READER SERVICE NO. **524**

Designed For Those Who Only Accept The Best!

TIMEMASTER II H.O.™



- Absolutely, positively, totally PRO-DOS and DOS 3.3 compatible.
- Time in hours, minutes, seconds and milliseconds (the ONLY PRO-DOS compatible card with millisecond capability).
- 24 hour military format or 12 hour with AM/PM format.
- Date with year, month, day of week and leap year.
- Eight software controlled interrupts so you can run two programs at the same time (many examples are included).
- The only card recognized by both the DOS 3.3 and PRO-DOS versions of Apple Writer IIe.
- Appleworks will now time and date stamp all your data automatically.
- The only clock card that will display the time and date on the Appleworks screen.
- Compatible with ALL of Apple's languages. Many sample programs for machine code, Applesoft, CP/M and Pascal on 2 disks.
- On-board timer lets you time any interval up to 48 days long down to the nearest millisecond.
- Auto-recharging nickle-cadmium battery will last over 20 years.
- Two BSR/serial ports for future expansion.

	PRO-DOS COMPATIBLE	INCLUDES DOS DATER	MILLISECOND TIME	YEAR DATA	LARGEST SAMPLE SOFTWARE	REMOTE SET PORT	BSR PORT	EMULATES ALL OTHER CLOCKS
H.O	YES	YES	YES	YES	YES	YES	YES	YES
BRAND A	NO	NO	YES	NO	NO	NO	NO	NO
BRAND C	NO	NO	NO	NO	NO	NO	NO	NO
BRAND M	NO	NO	NO	NO	NO	NO	NO	NO
BRAND P	YES	YES	NO	YES	NO	NO	NO	NO
BRAND S	NO	NO	NO	YES	NO	NO	NO	NO
BRAND T	YES	NO	NO	NO	NO	NO	YES	NO

Full emulation of all other clocks. Yes, we emulate Brand A, Brand T, Brand P, Brand C, Brand S and Brand M too. It's easy for the H.O. to emulate other clocks, we just drop off features. That's why the H.O. can emulate others, but none of the others emulate us. The Timemaster II H.O. will automatically emulate the correct clock card for the software you're using. Of course most programs will use the Timemaster II H.O. in its native mode, but it's comforting to know that you won't have to worry about compatibility problems. You can also give the H.O. a simple command to tell it which clock to emulate. This is great for writing programs for those poor unfortunates who bought some other clock card.

REMOTE CONTROL

Our BSR X-10 interface option for the H.O. allows you to remotely control up to 16 lights and electrical appliances through your BSR X-X-10 home control system in your home or office. You're already wired because a BSR system sends its signals over regular 120 volt wiring. That means you can control any electrical device in your home or office without additional wiring.

CLOCK PRICE $129.00 **BSR Option (may be added later) $49.00**

VIEWMASTER 80™

There used to be about a dozen 80 column cards for the Apple. Now there is only ONE.

- TOTALLY Videx Compatible.
- Perfect for any APPLE II, II+ or IIe.
- 80 characters by 24 lines, with a sharp 7x9 dot matrix.
- On-board 40/80 soft video switch with manual 40 column override.
- Fully compatible with ALL Apple languages and software—there are NO exceptions.
- Low power consumption through the use of CMOS devices.
- All connections are made with standard video connections.
- Both upper and lower characters are standard, with true descenders.
- All new design (using a new Microprocessor-based C.R.T. controller) for a beautiful razor sharp display.
- The VIEWMASTER incorporates all the features of all other 80 column cards, plus many new improvements.

	PRICE	BUILT-IN SOFTSWITCH	LOW POWER DESIGN	80 COLUMN HOME	7X9 DOT MATRIX	LIGHT PEN INPUTS	40 COLUMN OVERRIDE	INVERSE CHARACTERS
VIEWMASTER	139	YES	YES	YES	YES	YES	YES	YES
SUP'RTERM	MORE	NO	NO	NO	NO	NO	YES	YES
WIZARD 80	MORE	NO	NO	NO	YES	NO	YES	YES
VISION 80	MORE	YES	NO	NO	YES	NO	NO	NO
OMNIVISION	MORE	NO	NO	NO	NO	NO	YES	YES
VIEWMAX 80	MORE	YES	NO	NO	YES	NO	NO	YES
SMARTERM	MORE	YES	NO	NO	NO	YES	YES	NO
VIDEOTERM	MORE	NO	YES	NO	YES	YES	NO	YES

The VIEWMASTER 80 works with all 80 column applications including CP/M, Pascal, WordStar, Format II, Easywriter, Apple Writer II, VisiCalc, Dollars and Sense, and all others. The VIEWMASTER 80 is THE MOST compatible 80 column card you can buy at ANY price!

PRICE $139.00

Z-80 PLUS™
Now Includes New 4.0™ Software

Enter the CP/M world with the new Z-80 Plus card from Applied Engineering and introduce your Apple to thousands of new programs. Only the Z-80 Plus comes standard with the new 4.0 software, the most advanced system for running CP/M programs ever. Only CP/AM 4.0™ has advanced features like built-in disk emulation for popular memory expansion boards (those made by Apple and Applied Engineering and others) to give you a faster system with more storage. You also get menu driven utilities that are much easier to use than the older CP/M utilities so you can get down to all that great CP/M software faster. The Z-80 Plus runs older CP/M programs too, down to Version 1.6 (2.2 is the most popular). With the Z-80 Plus you can run the largest body of software in existence, and the Z-80+ is the only card on the market capable of accessing more than 64K in an Apple IIe. If you have an extended 80 column card, all 128K is usable, and if you have Ramworks, up to 1088K is available to CP/M. And each Z-80+ includes our CP/M Ram Drive software, enabling IIe owners to use an extended 80 column card, or a Ramworks card as an ultra-fast Ram disk enabling CP/M software to run 10 to 20 times faster. So fast acting software like WordStar, and dBASE II become virtually instantaneous! Simply plug the Z-80 Plus into any slot in your Apple. You'll have two computers in one and the advantages of both, all at an unbelievably low price.

- TOTALLY compatible with ALL CP/M software.
- Fully compatible with most hard disks including the Sider and Corvus.
- The only Z-80 card with a special 2K "CP/M detector" chip.
- Fully compatible with microsoft disks (no pre-boot required).
- Specifically designed for high speed operation in the Apple IIe (runs just as fast in the II+ and Franklin).
- Runs WordStar, dBASE II, Turbo Pascal, Fortran-80, Peachtree and ALL other CP/M software with no pre-boot.
- A semi-custom I.C. and low parts count allows the Z-80 Plus to fly through CP/M programs at a very low power level. (We use the Z-80B at a fast 4MHZ.)
- Does EVERYTHING the other Z-80 boards do, plus Z-80 interrupts.

PRICE $139.00

Our boards are far superior to most of the consumer electronics made today. All I.C.'s are in high quality sockets with mil-spec. components used throughout. P.C. boards are glass-epoxy with gold contacts. Made in America to be the best in the world. All products work in Apple IIe, II, II+ and Franklin. Applied Engineering also manufactures a full line of data acquisition and control products for the Apple; A/D converters and digital I/O cards, etc. Please call for more information. All our products are fully tested with complete documentation and available for immediate delivery. All products are guaranteed with a no hassle **THREE YEAR WARRANTY.**

Call (214) 241-6060, 9 a.m. to 11 p.m. 7 days a week or send check or money order to P.O. Box 798, Carrollton, Texas 75006. MasterCard, Visa and C.O.D. welcome. No extra charge for credit cards. Texas residents add 5⅛% sales tax. Add $10.00 if outside U.S.A.

APPLIED ENGINEERING
"We Set the Standard"

SERIES

RF FILTER CAD PROGRAMS

Several RF Filter CAD (computer-aided design) programs for engineers are now available from 8th Dimension Enterprises. The programs are menu-driven and enable users to calculate responses for various component values. Users can specify termination impedances, frequency range, and more.

Five filter programs are available—Low Pass Filter DC to 1200 MHz, High Pass Filter 1KHz to 1100 MHz, Band Pass Filter 10KHz to 1000 MHz, Band Reject Filter 10KHz to 1200 MHz, and Microstrip Low Pass Filter 100 MHz to 26.5 GHz.

Also available is Personal Inventory, a program that enables users to search and sort any record or file. Files include Real Estate Records, Employee Records, Address Book, and Health Records, although users can also design their own subject files. *(List Price: first four filter programs, $99.95 each; all four filter programs on one disk, $349.95; Microstrip Low Pass Filter, $1499.95; Microstrip and four filter programs, $1700; Personal Inventory, $59.95)*

Requires: Apple II Plus or IIe

8th Dimension Enterprises
P.O. Box 62366
Sunnyvale, CA 94088-2366
(415) 960-3460

CIRCLE READER SERVICE NO. **545**

SERIES

THE GRAPHICS PAINTER

The color-graphics package The Graphics Painter enables users to create high- and low-resolution color pictures with insertable, multifont, rotatable text, yet does not require a mouse, programming expertise, or prior knowledge of graphics. The system comes with utilities to store, retrieve, and modify illustrations; overlay text; shift between high and low resolution; and even create moving pictures. *(List Price: $49.95)*

Requires: Apple II Plus, IIe, or IIc; 48K RAM

Alternative Software, Inc.
1165 Barbara Drive
Cherry Hill, NJ 08003
(609) 429-3838
(609) 428-6701

CIRCLE READER SERVICE NO. **517**

SERIES

NEW STICKYBEAR PROGRAMS

Optimum Resource has announced three new programs in its Stickybear Early Learning Series for children between the ages of 6 and 9. Stickybear Spellgrabber helps children spell correctly and build their vocabularies. The program contains 4000 graded words, and users can also enter personalized word lists. Stickybear Town Builder enables children to learn map skills, such as compass reading, directions, map reading, and positioning, while they build their own towns. Finally, Stickybear Typing enables both children and adults to develop and sharpen typing skills by playing games and enjoying jokes and stories. *(List Price: $39.95)*

Requires: Apple II, II Plus, IIe, or IIc

Optimum Resource, Inc.
Station Place
Norfolk, CT 06058
(203) 542-5553

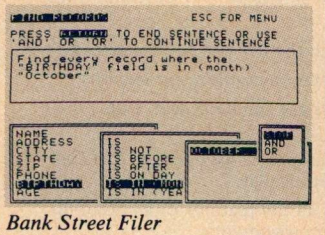
CIRCLE READER SERVICE NO. **518**

SERIES

BANK STREET SOFTWARE

Brøderbund Software has released two new packages in its Bank Street series. Bank Street Mailer comprises two programs—a mailing list and a letter writer. The software contains a version of Bank Street Writer that enables you to create letters and memos quickly and easily, and its data-management and data/text-merging features let you create name-and-address lists and print them on mailing labels and envelopes. You can then merge your mailing-list data into letters to produce personalized form letters. You can also insert a return address, data, or stored information into letters using a single keystroke.

Bank Street Filer is a database-management and report-generating program that allows you to store information and print reports in formats you create or in ready-made formats. It allows you to find and sort information using English phrases and to edit, redefine, move, or delete fields of information quickly and easily. Reports you produce can contain all or part of any information you have stored.



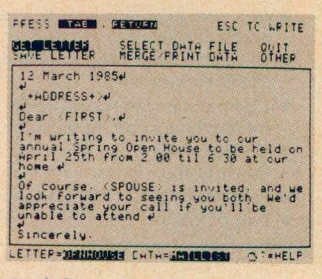
Bank Street Filer

Both programs are available in 64K or 128K versions: the 64K version offers a 40-column display; the 128K version offers either a 40-column or an 80-column display and an on-screen calculator. *(List Price: $69.95 each)*

Requires: Apple II Plus or IIe, 64K RAM; Apple IIe or IIc, 128K RAM

Brøderbund Software
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE READER SERVICE NO. **525**



Bank Street Mailer

AGRICAP ACCOUNTING PACKAGE

Designed for use by all sizes of farming and ranching operations, AGRICAP is an easy-to-use computerized accounting package for agriculture. The system enables users to keep track of three sets of financial records—a tax set for income-tax purposes, a management set for decision-making purposes, and a crop-period set for crop- and livestock-production purposes. The system can produce a variety of reports, both on-screen and on paper. *(List Price: Core Modules A, B, C, D—$495, $895, $1495, $1995; Ag-Basic Payroll, Payables, $495 each; demo module, $130)*

Requires: Apple III

XLN CAP
8163 N. Armstrong
P.O. Box 1328
Clovis, CA 93613-1328
(209) 297-7760

CIRCLE READER SERVICE NO. **526**

Print-it!™

THE NEW APPLE* COMPATIBLE SERIAL AND PARALLEL PRINTER INTERFACE

Go From Screen to Paper at the Touch of a Button!

The ONLY way to get fast, easy printouts of ANY screen, at ANY time, with ANY program.

Push the red button that comes with PRINT-IT! - Your program pauses instantly; touch RETURN and whatever is on your screen - text, graphics or both - is printed in color or black & white.

Whether your Apple II, II+, //e ② or "look-alike" is for business or pleasure, you'll want the ability to pause and take snapshots of your screen displays and then continue from exactly where you paused, all at the touch of a button - games, business data, menus, educational instructions, graphics - even CP/M③. PRINT-IT! will print your screen at any time no matter what program you're running, as well as perform every function you expect of an intelligent printer card.

PRINT-IT! supports:

- Graphics - Low, high, double low, and double high resolution • Text - 40 column as well as Apple //e and Videx④ 80 column cards including the new Apple 80 column RGB card
- Software - Prints from ALL software, even allows any printer to be used directly from Apple MousePaint
- Printers - All of the most popular printers,⑤ including color, are easily selected with a dip switch.

PRINT-IT!, complete with cable (serial or parallel), is available at your local computer store now! If they don't have it in stock, ask them to get it for you.

Can't find a local dealer? PRINT-IT! is available for $199 directly from Texprint① Qualified educational and dealer discounts available.

TEXPRINT

Subsidiary of Computer Products Inc.
220 Reservoir Street
Needham Heights Ma. 02194
Tel. (617) 449-5808

For information call Toll Free 1-800-255-1510

① Visa, MC, AMX accepted. Add $4 shipping and handling within USA, Mass res. add 5% tax
② Apple II, II+, //e, and MousePaint are registered trademarks of Apple Computer, Inc.
③ CP/M is a registered trademark of Digital Research
④ Videx is a registered trademark of Videx, Inc.
⑤ Apple DMP/IMAGEWRITER/SCRIBE, BMC, C. Itoh, Canon, Epson, Dataproducts, IDS, Tally, NEC, Okidata, Quadram, Panasonic, Radio Shack, Star Gemini, Transtar, Diablo plus many others.

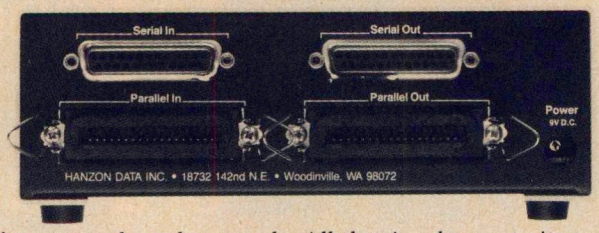
Brainy Buffer.

See us at COMDEX/Fall '85

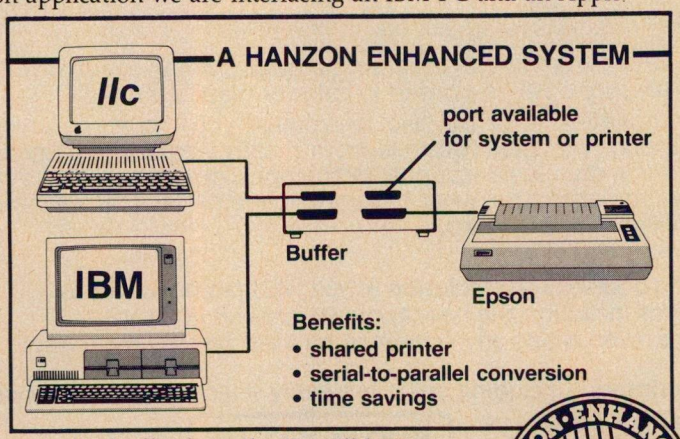
Do you press print and wait? And wait? And wait?

Your waiting is over with the Universal Data Buffer—it frees your computer in seconds while it handles the printing of your file.

And the Universal Data Buffer from HanZon is smarter than the average buffer. For one thing it has two inputs — one serial and one parallel, and two outputs—one serial and one parallel. Since all the ports are active, it means the Universal Data Buffer can interface between serial and parallel devices—even at different speeds and protocols. All that is a bonus to its standard function—as a 64K buffer expandable to 256K. The buffer also has operator controls for selecting additional copies, and pausing.



In this HanZon application we are interfacing an IBM-PC and an Apple IIc to an Epson printer. The Universal Data Buffer automatically handles the serial-to-parallel interfacing and also manages a first-in, first-out file priority for the two computers. A file that comes into the buffer from the IIc will begin printing immediately, but a file that subsequently comes in from the IBM will be stored until the first file is finished.



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$59—64K Expansion module

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II SERIES MAC III

POLYGON SOFTWARE

Polygon Industries has released three new programs—Flight Check, an airplane-operation program; F&I Master, a program for automobile dealers; and Translator, an artificial-intelligence program that translates languages to and from English.

Flight Check computes best altitude and power setting for a given flight, weight and balance, and reserve fuel at destination. Users can select a choice of minimum cost, minimum fuel, maximum speed, or maximum time. They then enter passenger weights, distance and direction, temperature, winds, elevation, and so on, and Flight Check makes the computations and produces a printout.

F&I Master allows automobile dealers to configure monthly payment terms on-screen and print out 13 types of sales forms. Users enter the stock number of the car, insurance charges, months of loan, down payment, trade-in information, service plans, and interest rate, and the program displays price and payment. Users can change any of the values in the file and observe the effect to find the best financing for each customer. The program prints all necessary forms, such as invoice, finance or lease contract, mileage statement, title application, and bill of sale.

With Translator, users specify an input text file—for example, a letter, passage from a book, or news story—and an output file that will contain the translated text. Alternatively, they can enter a line of text for immediate translation. The program translates to and from English with about 90% accuracy, and users can add to its vocabulary if they wish to. Translator is available in versions for translating French, German, Spanish, English, and Italian.

(List Price: Flight Check, Translator, $49 each; F&I Master, $2000)

Requires: Apple II, II Plus, IIe, IIc, III, or Macintosh; 48K RAM; one disk drive; daisywheel printer

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CIRCLE 231 ON READER SERVICE CARD

SERIES

THE PRINT SHOP COMPANION

Brøderbund Software has released The Print Shop Companion, its third follow-up program for The Print Shop software, which enables users to write, design, and print their own signs, letterheads, banners, and greeting cards.

The Print Shop Companion offers users of The Print Shop 16 new drawing tools; mouse control; and the ability to fill in images with patterns, mirror them, move them, invert them, or flip them over automatically. Users can also add text to graphics; draw lines, boxes, and ovals instantly; superimpose graphics on each other; and capture sections of graphic files from programs such as Brøderbund's Dazzle Draw and incorporate them into Print Shop designs. The program includes a library of 50 new borders and 12 new fonts, along with easy-to-use border and font editors. It also

A sample screen from Brøderbund's The Print Shop Companion

has three new features: Tile Magic, which lets users create different tile patterns; Calendar Maker; and Creature Maker. *(List Price: $39.95)*

Requires: Apple II Plus, IIe, or IIc; 64K RAM; one disk drive; printer; The Print Shop

Brøderbund Software, Inc.
17 Paul Drive
San Rafael, CA 94903
(415) 479-1170

CIRCLE READER SERVICE NO. **535**

ACCESSORIES

MAC SERIES

CABLES FOR MACINTOSH AND IIc

N² Products has introduced four new cables—a modem and a printer cable for the Macintosh and for the IIc. The Mac-Modem and the Apple IIc Modem cables mate the Macintosh and the Apple IIc with Hayes and compatible (RS-232) modems. The Mac-Printer and Apple IIc Printer cables interface to any RS-232 serial-interface printer that is compatible with the computer. The Macintosh cables feature thumbscrews for ease of installation; the Apple IIc cables feature icons to match the IIc's serial ports. All cables match the computers' original cables in style and color. *(List Price: Macintosh cables, $29.95 each; Apple IIc cables, $27.95 each)*

Requires: Macintosh or Apple IIc

N² Products, Inc.
15345 Bonanza Road
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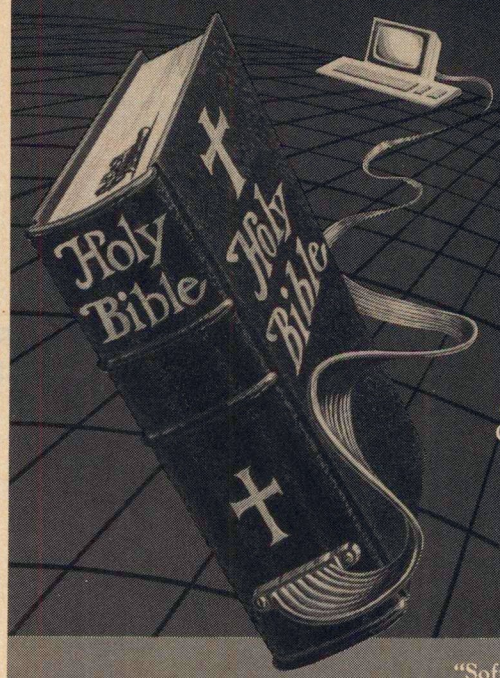

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CIRCLE 158 ON READER SERVICE CARD

MAC

▶ MORE MACCESSORIES

Several new products in Kensington Microware's Maccessories line of enhancement products for the Mac are now available.

The Circular Polarizing Filter reduces reflected screen glare by up to 99%, while improving screen contrast and clarity. The filter is easy to install with the fasteners included.

The Mouseway provides a smooth, quick-rolling surface for the mouse that is resistant to dirt and static. Besides preventing the mouse from absorbing any damaging furniture-cleaning solutions present on the desktop, it also stops the mouse from scratching the desk's surface.

Two cleaning kits are also available—the Mouse Cleaning Kit and Mouse Pocket and the Disk Drive Cleaning Kit. Each kit contains a year's supply of cleaning materials—25 cleanings for the mouse and 12 for the disk drive.

Finally, the Maccessories Starter Pack now includes the Tilt/Swivel instead of the Swivel, as well as the Surge Suppressor, and two Dust Covers. The Tilt/Swivel allows users not only to swivel the Macintosh, but also to tilt it to the most convenient viewing angle. *(List Price: Circular Polarizing Filter, $49.95; Mouseway, $9.95; Mouse Cleaning Kit and Mouse Pocket, $24.95; Disk Drive Cleaning Kit, $29.95; Starter Pack, $89.95)*

Requires: Macintosh

Kensington Microware Ltd.
251 Park Avenue South
New York, NY 10010
(212) 475-5200

CIRCLE READER SERVICE NO. **537**

II SERIES

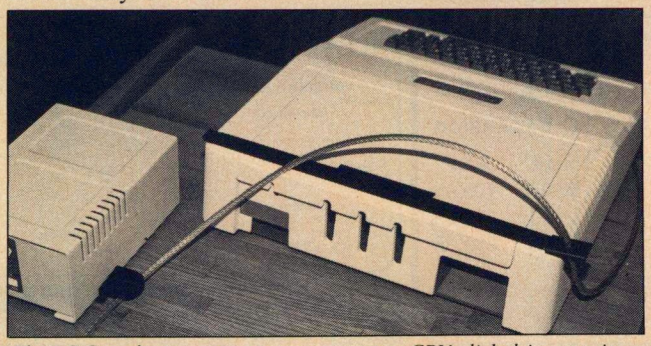
▶ PC GUARDIAN

Micro Security Devices has released the PC Guardian security system for Apple II Plus and IIe computers. The system comprises a CPU locking device, two disk-drive and monitor locking clips, and one six-foot high-security steel cable. It is easy to install and requires no special tools or modification of the computer. Individual components are also available separately. *(List Price: $49.95)*

Requires: Apple II Plus or IIe

Micro Security Devices, Inc.
1414 Lincoln Avenue
Suite 104
San Rafael, CA 94901
(415) 459-0190

CIRCLE READER SERVICE NO. **538**



The PC Guardian security system protects a CPU, disk drive, monitor, and boards from theft.

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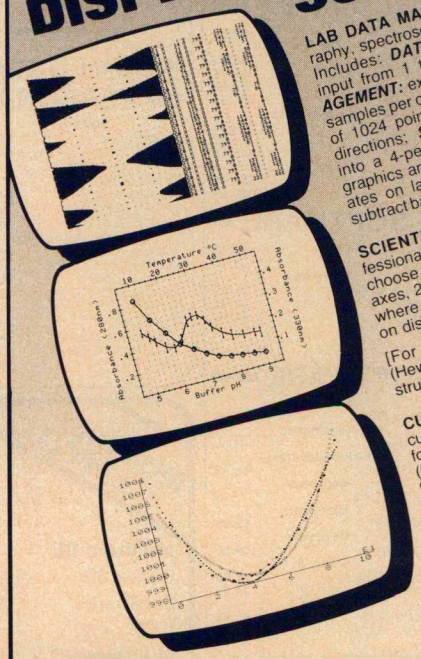
CIRCLE 307 ON READER SERVICE CARD

APPLE*II DATA ACQUISITION DISPLAY & PLOTTING SOFTWARE



LAB DATA MANAGER software for chromatography, spectroscopy and many other applications. Includes: **DATA ACQUISITION:** samples A/D input from 1 to 16 channels; **MEMORY MANAGEMENT:** extra RAM cards can store up to 32K samples per channel; **FAST DISPLAY:** 4 data sets of 1024 points with zoom and scrolling in 4 directions; **STRIPCHARTS:** turns your printer into a 4-pen chart recorder that prints both graphics and text; **DATA PROCESSING:** operates on large data sets; e.g., differentiate, subtract baseline, integrate peaks. **$250**

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CIRCLE 324 ON READER SERVICE CARD

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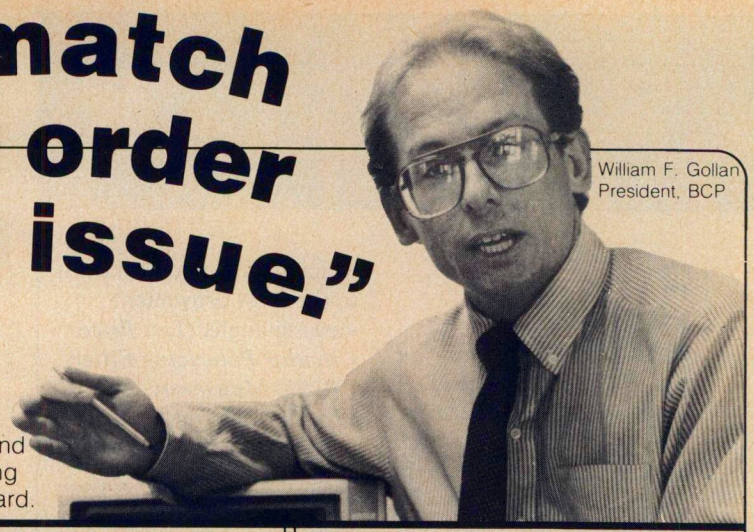

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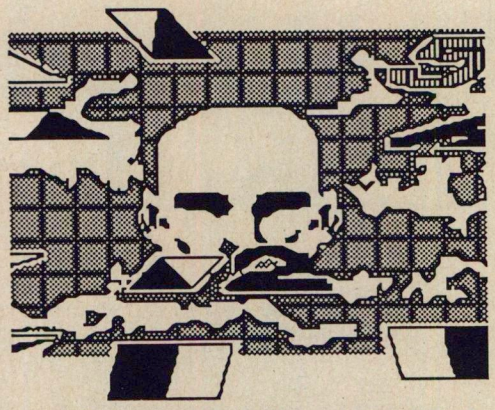

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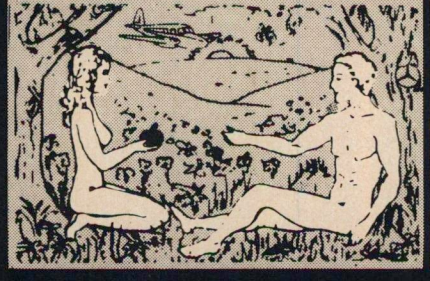

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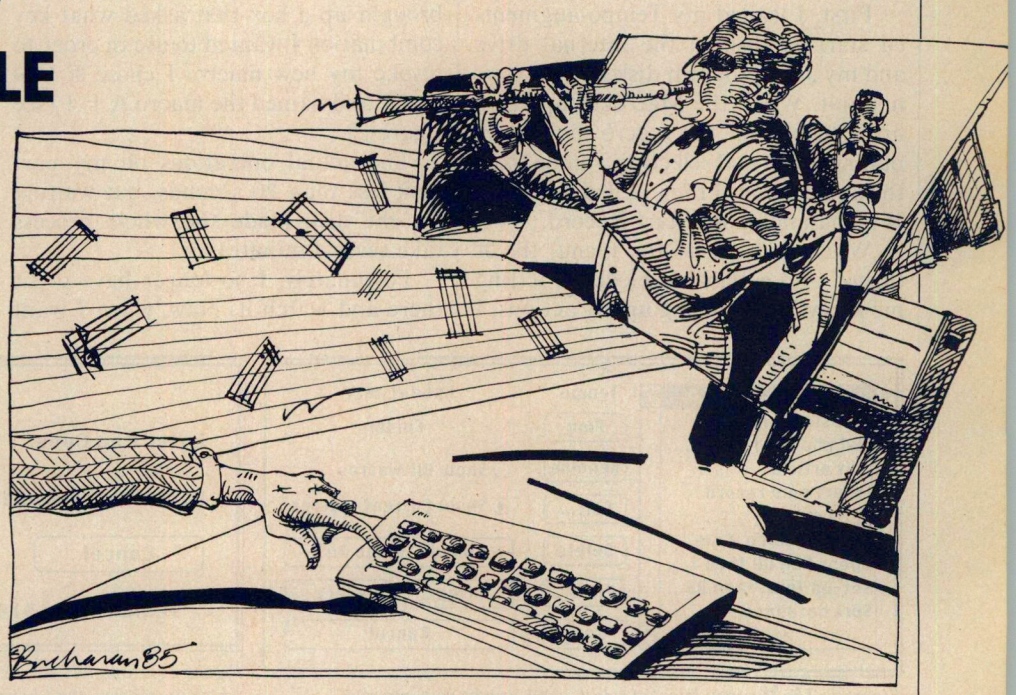
A preview of an important new product called Tempo

MACROS PLAY A LARGER ROLE



The business world is apparently full of closet programmers, which is why the programmable "macro" facility in Lotus 1-2-3 has been one of the key factors in making that spreadsheet-based integrated program for the IBM PC such a big seller. In the past months, I've written admiringly in this column about macros in Microsoft's new Excel. Now, I've got something even hotter. By the time you read this, a start-up company named Affinity Systems will be delivering Tempo, an under-$100 macro package for the Macintosh that it claims will work with both Excel and archcompetitor Jazz, as well as with most other Macintosh applications.

As I write this, the Tempo program is still in the testing stage, but I've tried it out (in fact, I'm using a Tempo-augmented copy of Jazz to write this). *A+* will, of course, be taking a closer look at Tempo after the package is released, but for now, I think Tempo is important enough to justify an early look. The whole subject of macros (which are longer collections of keystrokes, mouse movements, and operations that you can invoke with a short key sequence) strikes some people as decidedly un-Macish. After all, the Mac is supposed to be the computer for the rest of us, the nonprogrammers, oriented toward pointing and doing, rather than planning and coding.

Happily, you don't have to abandon all the Mac's virtues to make use of the power of macros. Tempo seems well integrated with the Macintosh way of doing things, providing enough power and depth even for programmers, yet keeping a simple, easy-to-use visual interface. You can use the simple record-and-play-back features even if you don't have any idea about program flow or background processes. If you're only slightly more experienced, you can create your own applications, ranging from menu systems and program tutorials to complete linked systems comprising your favorite stand-alone programs.

The Tempo program itself installs right in your system file (mine came preinstalled, but Affinity promises installation will be a simple process). You initially see it as one more choice on the Apple menu. Invoking Tempo adds an extra menu category to the menu bar, labeled with the ⌘ symbol.

You can do almost anything with Tempo that you can with the Mac's keyboard and mouse.

Pulling down the ⌘ menu (see figure 1), you can choose Start Record to create a menu, Command to select a previously created macro, Options or Configure to set up the way you want your macros to work, or Quit to remove Tempo from active use. A planned Edit section to let you alter your macros after you have recorded them was not working well enough in my prerelease version for me to test.

Furthermore, Tempo macros are interactive. In addition to simply recording and playing back keystrokes and mouse movements (operations that you can do with Assimilation's Mac-Tracks—see "Making Tracks with Mac-Tracks" on pages 173–177 of this issue), Tempo includes run-time user-entry screens, logical testing, branching, and chaining. In other words, a Tempo macro can ask you for data, compare data on the screen with other values or your inputs, and take actions based on the comparisons. Although it isn't a complete programming language

YVONNE BUCHANAN

by itself, you can do almost anything with Tempo that you can with the Mac's keyboard and mouse.

How does this all fit together? Let's work through a very simple example.

If You Hate to Wait

My least-favorite part of using the Macintosh is waiting for the disk drive to do its thing, especially if I have to sit there and periodically push keys or move the mouse. I decided, consequently, to see if I could automate the process of starting up Jazz and pulling up an article for further work. If you're number- or list-oriented, the same process works for spreadsheets or databases.

First, I loaded my Tempo-augmented start-up disk in the internal drive and my Jazz program disk in the external unit. When the Mac desktop came up, I turned on the macro facility by pulling down and selecting Tempo from the apple menu. I then pulled down the ⌘ menu and chose Start Record.

When I let go of the menu, the ⌘ turned into a flashing-block R, letting me know I was storing up my actions. I then used the mouse to click on the Jazz icon to start up the program.

Continuing on the Jazz desktop, I chose Open from the File menu and then the name of my draft article from the listing Jazz presented. After clicking on Open, I waited until the old version had been read in. Reaching for the keyboard for a little variety, I typed in ⌘w to expand the window to full size. Last, I pulled the scroll elevator on the right side to the halfway-down position to locate the screen near the middle of my work. I then pulled down the Tempo ⌘ menu and clicked on Stop Recording.

After I stopped recording, Tempo brought up a box that asked what key combination I wanted to use in order to invoke my new macro. I chose ⌘ Option-1 and named the macro A+.1 (see figure 2).

The actual operations on my part took less than 20 seconds, but waiting for the disk made the whole process take several minutes.

Fortunately, I no longer have to sit there and watch it. Now, when I want to work on this article, all I have to do at the Macintosh desktop is start Tempo and then press the ⌘, Option, and 1 keys all at once. While the Mac hums and whirs away, I open the mail or go grab a quick snack.

The prerelease disk from Affinity includes several more-complex sample macros, including a few that set up a database, sort it, copy the results to a memo, and display the results. Obviously, with Tempo, Jazz doesn't have to be all improvisation.

It's Quite Compatible

In addition to adding macros to Jazz, Affinity claims, Tempo should work with almost all standard Macintosh programs. I tried my prerelease copy on several other packages, with generally good results.

In MacWrite, Tempo successfully saved keystrokes and positioning commands; all I had to do was set up the Record mode. Without doing any obvious "programming," I was able to create a set of macros to format my page the way I liked it, type in commonly

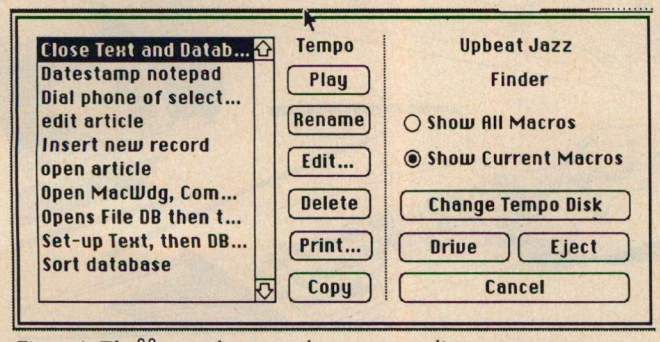


Figure 1: The ⌘ menu lets you select, copy, or edit your macros.

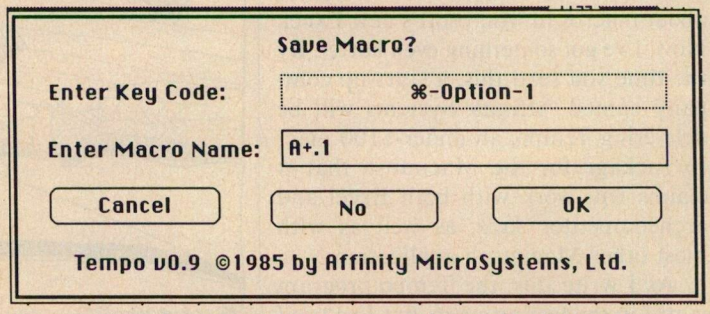


Figure 2: Tempo lets you assign a macro to any key combination you choose, which means you don't have to type long strings of commands anymore.

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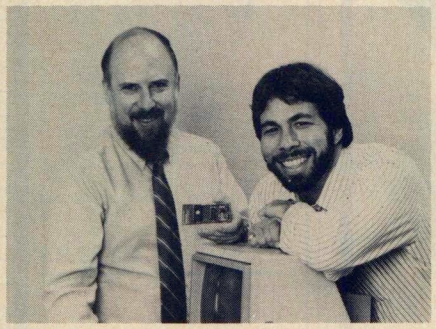

SwyftCard creator Jef Raskin and Apple II creator Steve Wozniak

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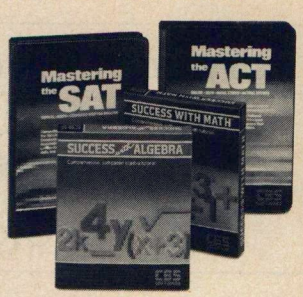

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used expressions and addresses, and save blocks of text.

In MacDraw, I was able to create macros to repeat a drawing sequence, allowing me to replicate compound objects. It took some trial and error, though, until I figured out how to structure the sequences to use relative positions each time, rather than absolute locations on the screen.

I was able to load Tempo with Excel but wasn't able to do much with it—the prerelease version of Excel uses several hidden menus on the menu bar, apparently leaving no room for the Tempo ⌘ menu. If I started and stopped a Tempo macro from the desktop, it indeed recorded my actions, but I didn't think that would be much use—you would really want to be able to use it during a run of the program. Affinity claims that changes in both programs before their release will solve the problem.

Which macros will take command if you write both Tempo and Excel entries for the same spreadsheet? I asked Affinity's founder and president, Rick Barron, about it. "Tempo will get the keystrokes first," he noted, so although the two will work together, Tempo will get precedence.

According to Barron, Tempo is well behaved, at least as far as programs go. As a result, it works with memory upgrades to at least two megabytes, hard disks, and Switcher. The only popular programs that Tempo doesn't work with are MacPaint and a few similar on-screen painting packages.

Many users don't need more than the ability to store up keyboard sequences, but if 1-2-3 on the IBM PC and Multiplan on the Macintosh and PC are any indication, the biggest impact of macros may not be for extemporaneous applications. For these other software packages, a whole tiny industry has grown up that supplies prewritten templates, and for the 1-2-3 you can also buy entire applications written as macros.

Using Tempo, developers should be able to write complete macro packages for vertical (industry-specific) applications based on Jazz, Excel, competitive products, and even combinations. Rather than starting the design and coding from scratch, using a macro approach lets developers employ existing software functions.

By six months after Tempo starts delivery, I predict, you'll begin to see small classified and tiny display advertisements in *A+* and other magazines offering Tempo templates for a range of purposes from annual federal-income-tax preparation to zoo management.

You'll also see Tempo-managed interactive tutorials and demonstrations

for a whole lot of new software products. Tempo's ability to play back long sequences of actions, yet stop and act on user inputs, makes it ideal for both tutorials and demonstrations. Tempo even has a feature to allow macros to play back at slow speed, which is excellent when you want to show the steps that make up a complex operation.

From the developer's point of view, producing a Tempo-run tutorial or demo is downright inexpensive, and it doesn't require writing a special version of the application software. With Tempo's input and branching capabilities, the tutorials can offer a range of instruction based on the previous knowledge of users. According to Barron, Affinity plans to offer a run-only version of the Tempo package at a cost low enough that developers can provide macro-driven tutorials for even inexpensive products.

Even though I think Tempo looks like a product that should be standard equipment for any serious Mac user, it does have some problems and limitations. So far, at least, it's not very smart about contexts. If you write a macro starting at the File menu and invoke it instead of the Edit menu, Tempo will do its best to run it anyway. Similarly, Tempo reads only menu positions rather than content. As a result, it gets thoroughly lost when menus change in order or size, which some do in both Jazz and Excel.

Tempo seems to take up less than 50K on a disk and even less in RAM, but until Apple cracks open the Mac, every little nibble can be a problem. The macros themselves take up little disk space, but because each one is a file, you can have problems if you use the initial versions of the Mac ROM chips—you need the new ROMs and Finder to keep track of more than 120 different files.

You don't have to abandon all the Mac's virtues to make use of the power of Macros.

As I mentioned about running Tempo with prerelease Excel, you also need menu-bar space. Again, Tempo doesn't take up much room in itself, but the gradual aggregation of accessories can result in an overcrowded menu bar. Barron reports that the final version of Tempo will have a pop-up display that appears only on command.

Last, even though Tempo macros are comparatively simple and easy to use, they form one more layer on what can already be a "user-opaque" machine. The package does allow step-by-step operation for debugging, but you can expect that both users and developers will sometimes long for a straightforward Apple II, with which you can practically reach into DOS and check out what is going wrong.

Overall, though, I think that Tempo's achievements far outweigh its limitations. When I took an early look at the General Computer Hyperdrive internal hard disk (*A+*, March 1985), I said it was one of the key elements needed to make the Mac a serious business competitor to the IBM PC. Macros are another requirement, and Tempo appears to be a beautifully done incarnation. ✚

Consulting Editor Steve Rosenthal says that after getting the software to test for this article, he won't ever have to write extemporaneously for A+ again.

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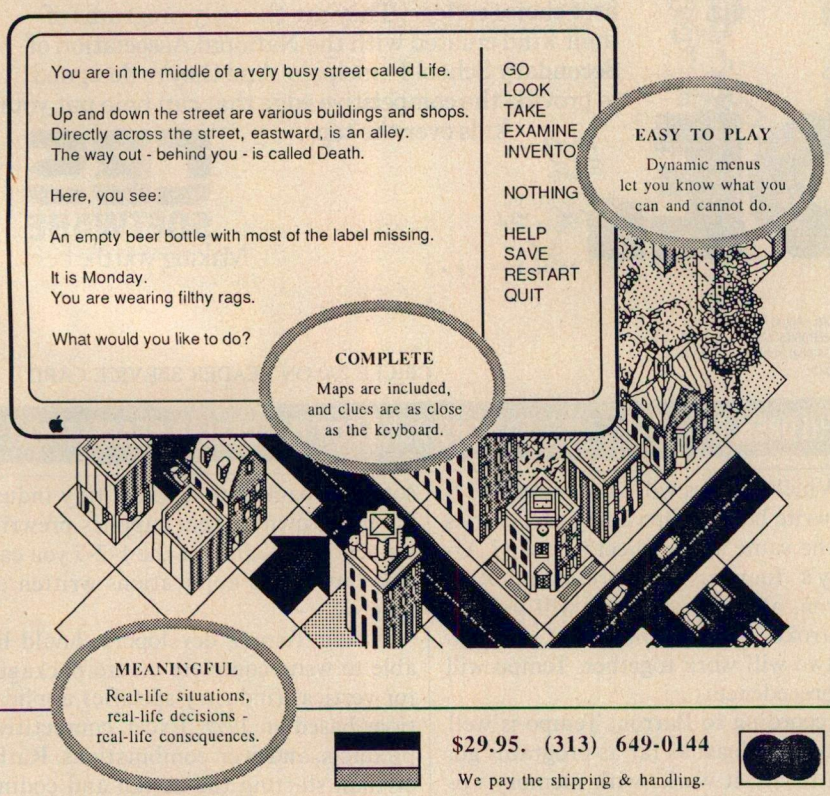

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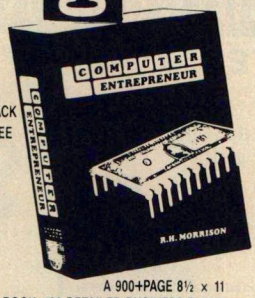

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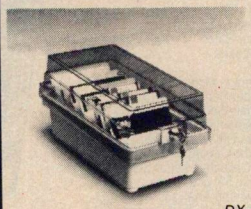

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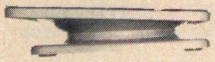

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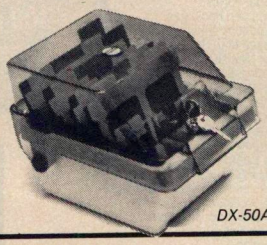

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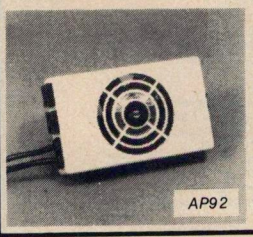

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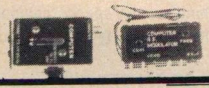

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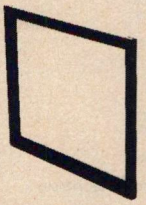

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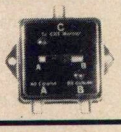

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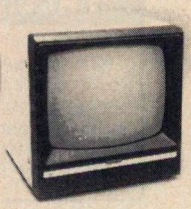

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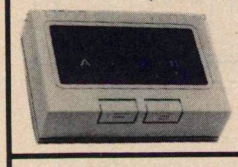

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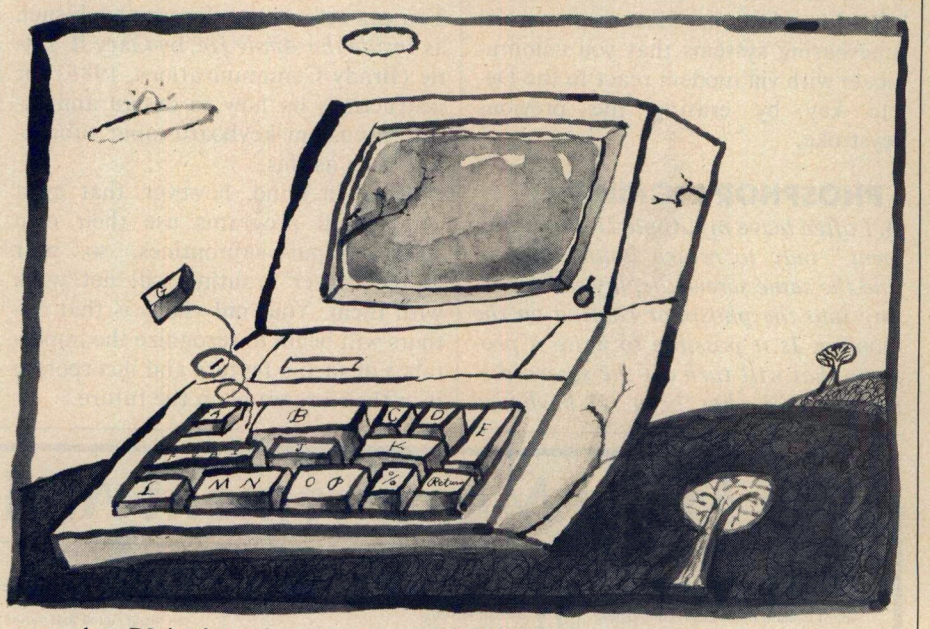

PRINT-PITCH PROBLEM

Q. *I have an Enhanced Apple IIe with a Epson FX-80+ printer and an MPC model AP-80 parallel-interface card. The problem I am having involves controlling the print pitch of the Epson from AppleWorks. In order to make the printer produce some enhancements, I created a custom printer configuration. When I print an AppleWorks document, an M prints at the beginning of the line, and the line indentation is wrong. Do I have a compatibility problem with the Enhanced IIe, AppleWorks, the interface card, or the Epson?*

A. Your interface card is causing your incompatibility problem. We have seen many problems when using AppleWorks with various interface cards and printers. Apple has recognized this problem and simply states that "some of the interface cards currently on the market are not 100% compatible with the Apple cards, and AppleWorks may not work properly with them."

In your letter you neglect to mention which version of AppleWorks you are using. You will need to update your AppleWorks disk to version 1.2, if you haven't already. Your dealer should give you a free update. Apple Computer sent all its authorized dealers the new version quite some time ago. With the new version of AppleWorks, you won't have to create a custom printer configuration to solve your problem. The new version allows you to configure various interface cards, including the MPC. Use the standard Epson FX-80 printer driver that is included with AppleWorks and change the interface-card setting from Control I 80N to Control I 255N.

You will find that you can obtain various print sizes. You may also discover that P2 is the only proportional-spacing mode that works, but it does not work with the justification feature in AppleWorks. The only way you can be certain that AppleWorks and your Epson printer will work correctly together is to use an Apple Parallel or Super Serial Card.

APPLEWORKS AND GRAPPLER PLUS

Q. *I am currently using AppleWorks Version 1.0 with ProDOS 1.0.1 I get an annoying 80N appearing at the top of the page. I assume this is because AppleWorks is trying to cause the printer to print 80 columns. I currently own a C-Itoh 8510A parallel printer with a Grappler Plus interface card.*

A. The first thing you should do is go to your local dealer and update your AppleWorks disk to Version 1.2 and then update your ProDOS disk to Version 1.1.1. These updates are free, and your dealer should be glad to do it.

The problem you are having is common, especially with the Grappler. AppleWorks Version 1.2 will take care of most of your problems. Create an ImageWriter or Apple DMP printer driver from the Printer menu. Then change the Interface Card setting from Control I 80N to Control I 0N. You will also need a line feed after each Return. Make sure that the DIP-switch settings on your Grappler are set to Apple Dot Matrix.

This solution will not correct every AppleWorks printer malfunction. You will still have problems getting good output with proportional spacing. AppleWorks does not make full use of the Grappler interface card.

APPLESOFT DELETE

Q. *Why can't I use the Delete key to back up and correct errors when entering Applesoft programs on my IIe?*

A. The Apple II and Apple II Plus computers did not have a Delete key on their keyboards, so Apple used the left-arrow key as the "backup and delete"

LILLA ROGERS

key when it designed the standard line input subroutine that Applesoft uses. Although the IIe and IIc keyboards do include a Delete key (which, by the way, generates an ASCII code of $7F, called a rubout), Apple decided not to change the line-input subroutine, presumably to ensure compatibility with existing software.

I don't mean to say that you can't use the Delete key to back up and erase a character in other editing situations; many programs already offer such a feature. For example, if you press the Delete key when you're using the word processor in AppleWorks, the character before the cursor is deleted, and the rest of the line moves one position to the left. In addition, most commercial timesharing systems that you communicate with via modem react to the Delete key by erasing the previous keystroke.

PHOSPHOR ETCHING

Q. *I often leave my Apple II "for a moment," only to return hours later to find the same screen display etching its way into the phosphor coating on the monitor. Is it possible to write a program that will turn off the screen display if there has been no keyboard activity for two or three minutes and then turn it back on again as soon as a key is pressed?*

A. Unfortunately, there is no way to turn the output to the Apple II's screen off and on, under program control. (You can do it on some other computers.) Recognizing that you can reduce "phosphor burn" simply by clearing the screen, however, you can solve your problem by writing a new keyboard-input routine that, after a fixed period of keyboard inactivity, saves the contents of the screen to a temporary storage area, clears the screen, and then restores the screen display when the next key is pressed. Such a program has to be written in 6502 assembly language. You can refer to a reference book such as *Inside the Apple IIe*, by Gary B. Little (Brady Communications, 1985) for instructions on how to design and install a custom keyboard-input subroutine such as this.

Keep in mind, however, that most commercial programs use their own special input subroutines, so your "screen saver" routine will not work with them. Your only hope is that authors will begin to recognize the importance of such a feature and incorporate it in their programs in the future.

CATALOGS WITH PFS

Q. *I read in your Rescue Squad column how to print out a catalog list of files. The method worked fine for my disks that stored files created with Fontrix but not for files created with PFS: Write. Can you give me a way to print out a catalog list of PFS:Write data files?*

A. Yes, but the process is somewhat involved. Current PFS products employ a unique file structure that other programs cannot read. If you use a program called The Bridge by Sun Microsystems, Inc. (P.O. Box 1388, Fort Lauderdale, FL 33302; [305] 486-6115), you will be able to read your PFS files and transfer them to another disk as standard ASCII files. You can then catalog this new disk and print out a catalog.

Editor's Note: Software Publishing Corporation has announced that all of its PFS software for Apple computers is being rewritten to use the standard ProDOS file structure, which will make the files compatible with the majority of Apple software. ✚

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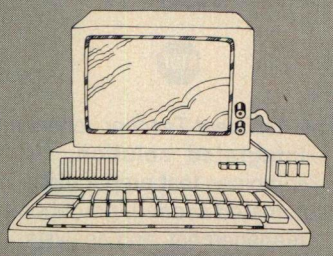

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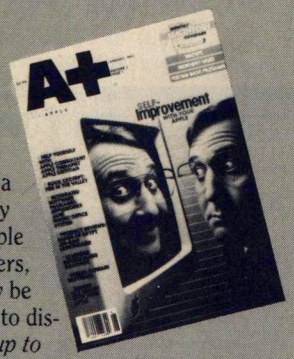

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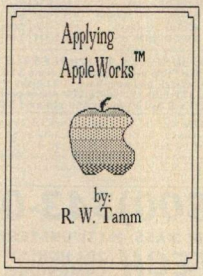

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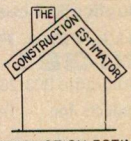

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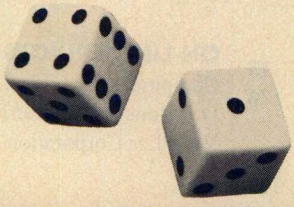

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A+ AD INDEX

BY PRODUCT CATEGORY

ACCESSORIES

PAGE

CARRYING CASES
Southern Case 44

DISKS
BASF 42,43
Echo Data Services 191
Nibble Notch 142
TDK 174

MISCELLANEOUS
Cheatsheet Products 129
Computer Cover Company 154
Eastern Software Distributors 106
MEC Enterprises 161
MicroRain 167
Software Simplified 130

BOOKS

PAGE

Bristen Press 215
Computer Information Ltd. 211
Prentice Hall Book Clubs 63

HARDWARE

PAGE

DIGITIZER
Digital Vision 120
Summa Graphics 178

DISK DRIVES/STORAGE DEVICES
First Class Peripherals 85
PCPC 146
Tymac 34

INTERFACE CARDS
Applied Engineering 10, 31, 32, 33, 67, 91, 137, 193, 214
AST Research 72
Checkmate Technologies .. 140
Hanzon 196
Information Appliance 207
Legend Industries 12
MacMemory Electronics ... 186
Mindshare Marketing, Inc. ... 4
Ohio-Kache Systems 128
Quadram 77
Video-7 1

MISCELLANEOUS
Covox 132
Data Input Group (InterFirm Systems) 177
Fishertecnik Computing 110
Kensington Microware 46
Quorum International 89
Round Lake Studios 176
Smart Shopper 144
X-10 41

MODEMS
Bach Co. 191

MONITORS
Nara Tech 8
Sony Information Systems 16,17
Thunderbird Instruments 71

PRINTERS/PRINTER ACCESSORIES
Diversions 124
Mannesman-Tally 100,101
NEC 155
Okidata 80
Softstyle 171
Star Micronics 143
Texprint 195

MAIL ORDER

PAGE

Beagle Brothers 133
Bell Wether 88
Business Computers of Peterborough 200
Byte General 98
CDA 68
Coit Valley Computers 84
Comark 185
Computer Network 99
Conroy La Pointe and Computer Exchange 187
EMCO 212
Garden of Eden 204
INMAC 30
Jameco 208
JDR Microdevices 65
Kyan 122
Northeastern 139,159
Pace Systems 181
PC Network 150,151
Precision Data Products 130
Programs Plus 69
RC Systems 136
Ribbon Land 174
Silicon Express 197
Software Dimensions 175
Zimco 206

SOFTWARE

PAGE

BUSINESS
Advanced Logic 12,70,138
Borland International 153
Brain Power 199,201
H. & E. Computronics .. Cov 2
International Solutions 190
Manzanita Software 38
Meacom International 152
Microsoft 156,162-163
PBI Software ..... Cov 4
Peachtree 48
Personal Computer Peripherals Company 146
Pinpoint Publishing 74,75
Public Domain Exchange .. 112
Russ Systems 78

COMMUNICATIONS
Alter Ego 18
Dataviz, Inc. 176

DATA MANAGEMENT
Brock Software Products ... 172
P/M Software 135

DEVELOPMENT SYSTEMS
Manx Software Systems ... 180

EDUCATION
CBS Software 209
Compu-Teach 76
Davidson & Associates 83
Learning Technologies 120
Olympus Educational Software 4
Spinnaker Software . 58-60,131
World Book Discovery 13

ENTERTAINMENT/ STRATEGY
Activision 119
Aegis Development 184
EPYX 111,113,115
Light Speed Software 118
Microprose Software 116
Mindscape 22,23,108,121
Origin Systems 125
Professor Jones 118
Relational Systems 210
Softlore Corporation 123
Spectrum Holobyte 160
Sublogic 5

FINANCIAL
Core Concepts 105
Tronix/Monogram 49-52

GRAPHICS
Baudville 114
Spectralgraphics 28,224

LANGUAGES
Microsoft 156,162,163

MISCELLANEOUS
Accelerated Logic 98
Bible Research 198
Big Red Apple Club 122
Black Sun Exchange 188
Columbia Software 224
Companion Software 127
Compucrafts 142
Interactive Microware 199
Megahaus 107

ON-LINE SERVICES
Compuserve 2,3
Dow Jones News Retrieval .. 92
Viewdata Corporation 94-97

PERSONAL BUSINESS-HOME
HowardSoft ..... Cov 2
MECA 54,55

UTILITIES
Alpha Logic Business Systems 66
Central Point Software . 30,171
Micro-Analyst 185
PBI Software 168
Pro/Pac 124
Utilico 117
Vilberg Brothers 215

WORD PROCESSING/SPELLING CHECKERS
Gutenberg Software 79
Roger Wagner Publishing .. 104
Scarborough 29
Sierra-on-Line 202
SSI Software 45

ALPHABETICAL AD INDEX

READER SERVICE NO. — PAGE

A

108 Accelerated Logic 98
264 Activision 119
117 Advanced Logic Systems 138
119 Advanced Logic Systems 12
122 Advanced Logic Systems 70
317 Aegis Development . 184
112 Alter Ego Dev. 18
259 Alpha Logic Business Systems 66
* Applied Engineering . . 10
* Applied Engineering . . 31
* Applied Engineering . . 32,33
* Applied Engineering . . 67
* Applied Engineering . . 91
* Applied Engineering . 137
* Applied Engineering . 193
* Applied Engineering . 214
323 AST Research, Inc. . . 72

B

269 Bach Company, The 191
157 BASF 42-43
156 Baudville 114
* Beagle Brothers 133
229 Bell Wether Software . 88
158 Bible Research Systems 198
113 Big Red Apple Club . 122
160 Black Sun 188
322 Borland International 153
124 Brain Power Inc. . . . 201
307 Brain Power Inc. . . . 199
166 Bristen Press 215
300 Brock 172
* Business Computers of Petersborough . . 200
306 Byte General 98

C

270 CBS Software 209
292 CDA Computer Sales . 68
184 Central Point Software 30
185 Central Point Software 171
138 Cheatsheet Products . 129
128 Checkmate Tech. . . . 140
340 Coit Valley Computers 84
237 Columbia Software . . 224
303 Companion Software, Inc. 127
* Compucrafts 142
271 Compuserve 2,3
163 Computer Cover Co. 154
308 Compu-Teach. 76
209 Computer Information Limited 211
137 Computer Network . . . 99
129 Conroy-La Pointe and Computer Exchange 187
236 Core Concepts 105
* Covox, Inc. 132

D

333 Dataviz Inc 176
337 Davidson & Associates 83
172 Digital Vision 120
* Diversion 124
277 Dow Jones News Retrieval 92

E

308 Eastern Software Distributors 106
123 Echo Data Services . 191
239 EMCO 212
285 Epyx 111
141 Epyx 113
102 Epyx 115

F

104/105 FirstClass Peripherals 85
319 Fishertechnik 110
125 Forethought, Inc. . . . 139

G

262 Garden of Eden 204
136 Gutenberg Software Limited 79

H

* H & E Computronics C-2
216 Hanzon 196
* HowardSoft C-3

I

* Information Appliance 207
286 Infotek, Inc 198
* Inmac 30
324 Interactive Microware 199
314 Interfirm Systems . . . 177
191 International Solutions 190
162 I/O Design 174

J

279 Jameco Electronics . . 208
167 JDR Microdevices . . . 65

K

134 Kensington Microware 46
161 Kyan Software 122

L

173 Learning Tech. 120
289 Legend Industries 12
218 Lightspeed Software . 118

M

132 MacMemory Elec. . . 186
181 Mannesman Tally 100,101
189 Manx Software Systems 180
226 Manzanita Software . . 38
170 Meacon International 152
147 MEC Enterprises . . . 161
325 MECA (Micro Education Corporation of America) 55
272 Megahaus Corp. 107
348 Micro Analyst 185
115 Micro City 181
111 Microprose Software 116
* Microsoft . . 156,162,163
* MicroRain 167
149 Mindshare Marketing . . 4
188 Mindscape, Inc 108
195 Mindscape, Inc. 121
196 Mindscape, Inc. . . 22,23
* Monogram 49-52

N

310 NARA Technologies . . 8
294 NEC Information Systems, Inc. . . 155
263 Nibble Notch 142
304 Northeastern Software 159
330 Northeastern Software 139

O

178 Ohio Kache Systems, Corp. 128
240 Okidata Corporation . . 80
343 Olympus Ed. Software . 4
145 Origin Systems 125

P

242 PBI Software 168
241 PBI Software C-4
315 PC Network . . . 150,151
318 Peachtree Software . . . 48
224 Personal Computer Peripherals Corporation 146
152 Pinpoint Publishing . . 90
192 Pinpoint Publishing 74,75
135 PM Software 150
228 Precision Data Products 130
* Prentice Hall 61,62
148 Professor Jones 118
299 Programs Plus 69
165 Pro/Pac 124
320 Public Domain Exchange 112

Q

139 Quadram Corporation . 77
223 Quorum International Unlimited 89

R

118 R.C. Systems 136
274 Relational Systems Corp. 210
162 Ribbon Land 174
154 Roger Wagner Pub. . 104
* Round Lake Studios . 176
346 Russ Systems 78

S

206 Scarborough Systems, Inc. 29
345 Sensible Software 64
347 Sierra On-Line, Inc. . 202
231 Silicon Express 197
245 Smart Shopper 144
238 Softlore Corporation . 123
313 Softstyle, Inc. 171
200 Software Dimensions 175
130 Software Simplified . 284
121 Softwest Programming . . 182
194 Sony Information Systems 16,17
120 Southern California Research Group . 44
* Spectralgraphics Software . . . 28,224
233 Spectrum Holobyte . . 160
* Spinnaker Software . 131
222 SSI Software 45
211 Star Micronics 143
207 Statsoft 112
110 Sublogic 5
321 Summa Graphics . . . 178

T

174 TDK Electronics 134
* Texprint 195
305 Thunderbird Instruments 71
301 Tymac Controls Corp. 34

U

291 USA-Flex 185
190 Utilico Software 117

V

183 Video-7 1
312 The Viewdata Corporation . . 95-97
244 Vilberg Brothers Computing, Inc. 215

W

316 World Book Discovery 13

X

347 X-10 USA 41

Z

349 Zimco 206

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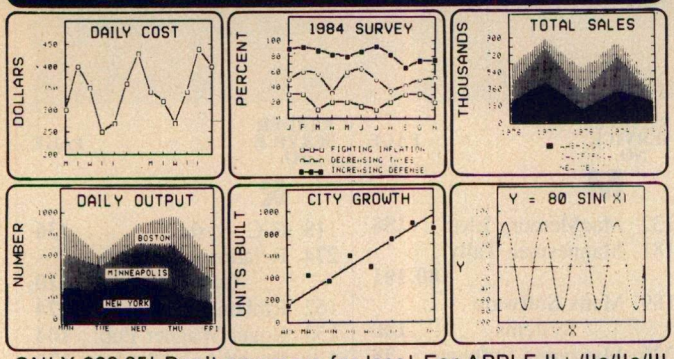

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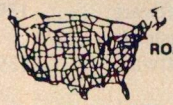

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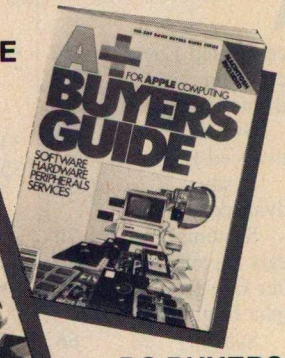

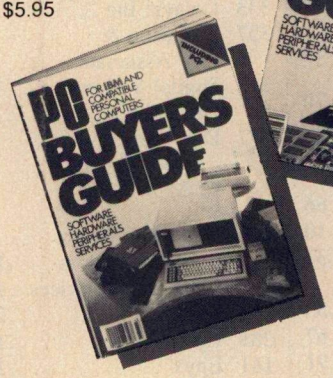

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